The Journal of the American Medical Association

VOL. XXX. CHICAGO, ILLINOIS, JANUARY 1, 1898. NO. 1.

ADDRESS.

GLAUCOMA FOLLOWING TRAUMATISM, UNASSOCIATED WITH DISLOCATION OF THE LENS.

Chairman's Address delivered in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY G. E. DE SCHWEINITZ, M.D.

PHILADELPHIA.

In the general rejoicing of the AMERICAN MEDICAL ASSOCIATION on its fiftieth anniversary the Ophthalmic Section heartily joins, and all the more heartily because by reason of its own clean record, steady development and fair achievements, it has become a model Section of this notable gathering of American physicians and surgeons. To have been chosen to preside over its deliberations is a satisfaction for which I return my sincere thanks; to become the successor of the men who have labored so hard and so productively for the advancement of this Section and for the credit of ophthalmology is an honor I highly appreciate; to welcome you, my *confrères*, perhaps I may be permitted to say, my friends, on this occasion and on all other occasions when you shall gladden us with your presence, is a pleasure I greatly enjoy.

The Chairman's address was at one time, by the organic law of the ASSOCIATION, supposed to reflect the progress of ophthalmology during the preceding year. Happily, this custom or law, as Dr. Jackson has well observed, has become obsolete, and if the Chairman has done more than make a few suggestions as to the general conduct of the Section, he has contributed one of the scientific papers of the session. I am therefore constrained to follow this latter custom and ask your attention to the subject of high eyeball-tension, or acute glaucoma, following blows upon the bulbus, when such an injury is unassociated with dislocation of the lens. To introduce the topic the following case may be recorded:

Joseph H., aged 46 years, born in Germany, married, saloon keeper, consulted me Feb. 5, 1894, on account of an injury to his left eye.

History.—While chopping wood, a few hours previous to his visit, he was struck on the left eye with a large piece of wood. A medical student dressed his wounds and brought him immediately to my office.

Examination.—There was a cut upon the left upper eyelid and another upon the neighboring facial area. The conjunctiva was somewhat chemotic and slightly lacerated on its bulbar expansion at the outer side of the eyeball. Under the influence of a mydriatic the pupil dilated irregularly, *i. e.*, only upward and inward; downward and outward the iritic fibers were paretic and refused to respond to the drug. The media were clear; the lens was in place; the optic disc was oval, its long axis being 120 degrees; the edges were somewhat hazy and the veins full. The refraction was a low myopic astigmatism and V. equaled, without correcting glass, $^{6}/_{18}$. The optic disc of the right eye was an oval, with its axis at 30 degrees; the scleral ring was visible all around and broadened below; the edges of the papilla were hazy. The refraction, like that of the other eye, was a low myopic astigmatism and V., without a correcting lens, equaled $^{6}/_{18}$.

The wounds on the face and eyelid were stitched and a proper dressing was applied.

February 7, 1894.—Stitches and bandage were removed. The conjunctiva was still somewhat edematous; a boric acid lotion was ordered.

February 12, 1894.—V. of O. S. $^{6}/_{6}$. The pupil had regained its normal round shape, but the light reaction was somewhat sluggish. The fundus was unchanged.

February 27, 1894.—Patient was not seen in spite of positive directions, until the present date. He complained of dull vision and some lachrymation, but denied the presence of pain. V. equaled $^{6}/_{15}$, with the head tipped slightly upward. Field of vision was concentrically contracted. The nerve head was obscured by a grayish swelling, the apex of which was + 2 D., the macula being not far from Em, or slightly M. The veins were enormously distended and the smaller branches very tortuous; the arteries were about normal in size and were quickly pulsating on the disc. Tn. + ?. The light reaction of the pupil was sluggish; the anterior chamber was not shallowed. The patient was sent to Dr. H. A. Hare for general examination, who reported as follows: "There is no enlargement of liver or spleen; if anything, the area of hepatic dulness is somewhat smaller than normal. The apex beat of the heart is displaced downward and to the right, and is quite forcible. After exercising there is an inconstant mitral regurgitant murmur. The tricuspid valves also seem as if they might be suspected of slight regurgitation. The aortic valves are normal, but the second sound is not quite so sharp as in the average individual. The chest shows no bulging in expansion which would indicate thoracic aneurysm. The blood vessels seem to be fairly normal; a condition of high tension does not exist. The urine is normal." Leeches to the temple, a calomel purge, iodid of potassium and, locally eserin, were ordered.

March 12, 1894.—V. equaled $^{6}/_{12}$; field of vision somewhat enlarged. The margins of the disc were clearer; there was still quick arterial and venous pulse. Tn. + 1.

March 22, 1894.—V. equaled $^{6}/_{15}$ —. The arterial pulse was unchanged; the disc margins were clearer and the beginning formation of the cup was visible. The pupil reacted sluggishly to light. Treatment continued.

April 3, 1894.—V. equaled $^{6}/_{22.2}$. Media were clear; the arterial pulse continued and the cup was still more marked, although not quite complete. Only medicinal treatment was accepted, and for the iodid of potassium strychnin was substituted. The local treatment remained the same.

May 25, 1894.—The patient was not seen again for nearly two months. He had long since discontinued his internal and local medication. V. equaled O, Tn. + 1. The optic disc was atrophic and deeply cupped (bottom of cup — 5 D., edges of disc — 1.5 D.). The vessels were crowded to the nasal side and there was a strong arterial pulse; a halo was beginning to appear, most marked upon the temporal side. The pupil was fixed. Upward and outward in the ciliary region a bluish staphyloma of moderate size had appeared.

The patient was seen once more and the ocular conditions remained unchanged.

Briefly, then, the phenomena in this case were the following: Contusion of the left eyeball, with slight laceration of the conjunctiva, but without dislocation of the lens; between the seventh and twenty-second day after the injury, the development of optic neuritis, quick arterial pulsation and slight increase in intra-ocular tension, with marked depreciation of central vision and contraction of the field of vision; at first, improvement under the influence of eserin, associated with gradual subsidence of the neuritis, the improvement lasting about two weeks; later, at the end of three weeks, renewed depreciation of vision associated with the formation of a cup in the nerve head; gradual increase in the depth of the cup and the atrophy of the nerve until (treatment having been entirely disregarded) vision was reduced to *nil*; throughout the entire course of the

affection moderate increased tension, + 1, and quick arterial pulse, which persisted even when the atrophy was complete; nearly three months after the injury, the development up and out, of a ciliary staphyloma.

Remarks.—Glaucoma following an injury may be typically secondary; or it may present the clinical signs and pathologic lesions of the primary variety of the disease.

To the first of these classes, with which we are not now concerned, belong the well-known examples of glaucoma secondary to perforating wounds of the cornea, forward and lateral dislocation of the lens, puncture and swelling of the crystalline body, etc. To the second class belong several varieties:

1. Cases of glaucoma following trifling injuries, *e. g.*, a slight burn or abrasion of the cornea, or even the lodgment of a foreign body on its surface.

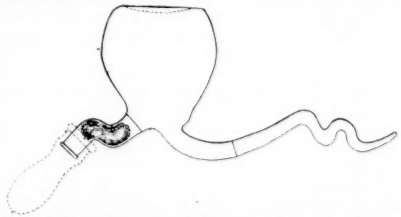
Under these circumstances, as Priestley Smith[1] maintains, it is fair "to assume that the eye was predisposed to glaucoma." He further believes that "in these traumatic cases the origin of the outbreak is probably an active hyperemia rather than a passive congestion and there is a special tendency to inflammatory exudation, but the direct cause of the high tension appears to be the same as in the more typical cases." To this category would belong such a case as that reported by C. J. Lundy,[2] in which an outbreak of this disease, resulting in loss of the eye, followed the sting of a bee on the conjunctiva.

2. Cases of glaucoma following contusion of the eye, either without discoverable lesion or else without marked changes which would account for the increased tension.

Glaucomas of this character have usually followed a blow upon the eye, for example, from the cork of a bottle or from a chip of wood. A case in point is one reported by W. A. Brailey[3]. A boy aged 14 years eight days before admission to the hospital received a blow on the right eye from the cork of a beer bottle. The pupil of the right eye was fully dilated and fixed and the tension increased to + 2. Vision was 6/60; the disc a little misty. The patient was treated by the instillation of eserin and gradually the disease subsided, vision and tension improving for a time, when the eserin was omitted and the pupil again dilated and tension returned. According to the reporter there was no obvious change in the eye to account for the tension, except the condition of the pupil. When this was contracted by means of eserin the tension fell, possibly because the drawing of the iris at the periphery of the anterior chamber caused a stretching of the fibers between the spaces of Fontana, permitting a readier access of the fluids of the anterior chamber to the canal of Schlemm.

Not quite so clear a case is one reported by Ferber[4]. A patient, whose age is not given, received a contusion of the eye without noteworthy injury of the bulbus and without dislocation of the lens. A small retinal hemorrhage and exudate were also visible. As these were considered too insignificant to be regarded as the etiologic factors in the production of the glaucoma which followed this contusion, the author refers to a neuropathic element, but suggests as possible and, as it seems to me, much more likely that the contusion closed the pathways of the intra-ocular currents.

A very instructive case touching on this question of the etiology of glaucoma after blows upon the bulbus of the type we are now considering, has been reported by Knapp[5]. A patient 29 years old was struck on the eye with a cane, and presented himself for treatment with an obliterated anterior chamber, clear media, diminished tension and a myopia of 1/7 which, when corrected, gave him normal vision. After bandaging and rest there was restoration of the anterior chamber, and with its restoration an attack of acute glaucoma, which was cured by the instillation of eserin. Knapp explains this case as follows: The injury probably produced a perforation of the corneo-scleral wall at the periphery of the anterior chamber, which escaped his notice. Now, although the sinus of the anterior chamber was obliterated by the advancement of the lens which crowded the iris against the posterior face of the cornea, glaucoma did not develop until the iris reassumed its natural position, because so long as it was pressed forward and the anterior chamber was obliterated, the aqueous humor was leaking from the insignificant corneo-scleral perforation. With the closure of this perforation and the restoration of the anterior chamber, the aqueous could no longer find an outlet through Fontana's spaces, which during the time of pressure of the iris against them, had probably become impervious. In commenting on this case, which has just been quoted from Dr. Knapp's description, this author points to the analogy between this type of glaucoma and that which follows the closure of a corneal fistula, inasmuch as the same explanation is applicable to each.



3. Cases of glaucoma following injury to the eye, either with manifest lesions in the anterior portion of the bulbus, or with ophthalmoscopic changes, retinal hemorrhage, neuritis and choroiditis.

Fortunately a certain number of eyes have been carefully examined after traumatic glaucoma from the microscopic standpoint and give an explanation of the phenomena of increased tension. Priestley Smith[6] enucleated the right eye of a woman aged 57 years, which was in a condition of acute absolute glaucoma as the result of a blow from a cork escaping from a soda-water bottle, the accident having occurred nine weeks previous to her examination. After giving the microscopic examination of the eyeball in detail, this author sums up his case as follows: "The iris had been manifestly driven forward and its periphery pressed against the cornea by the processes so as to close the angle of the anterior chamber and cut off all access to Schlemm's canal. It is likely that the blow, the violent effect of which upon the ciliary structures was indicated by a partial detachment of the iris, had caused a vasomotor paralysis and hence a congestion and swelling of the processes, and that this swelling had closed the outlet of the anterior chamber and established the glaucoma."

[1] On the "Pathology and Treatment of Glaucoma," London, 1891, page 126.
[2] American Journal of Ophthalmology, St. Louis, 1886, iii, 122.
[3] Trans. Opth. Soc. U. K., London, 1884, iv, 113-115.
[4] Jahresberichte f. Ophthalmologie, xix, p. 377. I have not been able to consult the original reference.
[5] Archives of Ophthalmology, New York, 1881, x, p. 451.
[6] The Ophthalmic Review, London, 1882, i, 273-279.

In other words, in this case the pathologic changes were similar to those which are found in acute primary glaucoma.

Garnier[7] saw in a 14 year old boy, after a blow on the eye, an acute elevation of the intra-ocular pressure, and after ten days the development of a scleral staphyloma. The ball was enucleated and microscopically there were found fluidity of the vitreous; hyperemia of the iris; widening of the veins of the canal of Schlemm; rupture of the zone of Zinn downward and inward, although the lens, which was clear, was not luxated; hyperemia of the retina; blood extravasations between the nerve-fibers of the papilla and the retina; widening of the larger vessels of the ciliary body and corresponding to the rupture of the zone of Zinn, a tear in the circular portion of the ciliary muscle, in the neighborhood of which the arterioles were thrombosed. The choroid and suprachoroid were greatly swollen and edematous and the pigment macerated, all spaces in the sclera and all perivascular lymph spaces being choked with pigment cells. To this condition of the choroid and its consequences Garnier attributes the elevation of intra-ocular tension.

In my own case, the primary irregularity of the pupil suggests lateral dislocation of the lens, but as the pupil was in a few days restored to its normal circular form and reaction (although the latter was somewhat sluggish), it may be regarded as an example of partial traumatic mydriasis, perhaps associated with a slight tear in the sphincter of the iris, although this could not be demonstrated. With the exception of this condition, which was temporary and which disappeared before the onset of glaucoma, and the slight laceration of the conjunctiva there was no demonstrable lesion in the anterior portion of the eye. The interesting manifestation which antedated the glaucoma, or rather which may be regarded as its first stage, was the optic neuritis. Now, although textbooks do not commonly describe optic neuritis as an antecedent of glaucoma, there are many observations which indicate that inflammation of the optic nerve frequently, if not always, precedes the development of glaucoma, and some authors speak with confidence of a glaucomatous papillitis[8]. It seems likely, on the basis of a number of microscopic observations, notably one by L. Webster Fox and W. A. Brailey[9], that inflammation of the nerve may travel forward and finally invade the ciliary muscle; or perhaps that both structures, viz., the optic nerve and the ciliary muscle may be simultaneously affected. No doubt the blow upon the eyeball of my patient produced congestion and swelling of the ciliary structures, which as in the case already quoted from Priestley Smith, closed the outlet of the anterior chamber and helped to establish the glaucoma. Either as part of this process, or else antedating it, there were inflammation of the optic nerve and softening of its structures by inflammatory exudate, which rendered the cupping and atrophy all the more certain. The late development of the ciliary staphyloma, as in Garnier's case already quoted, indicates serious structural changes in the ciliary area, which permitted gradual bulging of the ocular coats in this region in consequence of the increased intra-ocular tension.

[7] Jahresbericht f. Ophthalmologie, xxii, p. 341.

[8] For a full discussion of this subject consult "Glaucoma: Its Symptoms, Varieties, Pathology and Treatment," by Alexander Stirling, Annals of Ophthalmology and Otology, Vol. v, No. iv, p. 1026; Ibid, Vol. vi, No. i, p. 47.

[9] Royal London Ophthalmic Hospital Reports, London, 1881, x, ii, p. 205.

The evident conclusion of the whole matter is this, that in cases of traumatic glaucoma, setting aside for the moment those which cause the typical secondary variety of the disease, the lesions, so far as we may judge from microscopic examinations, are similar to those which we find in the primary variety of the affection. These cases further indicate the necessity of keeping under observation patients who have suffered from blows on the eye, even when all external manifestations of the injury have passed away, because there may develop, as in my own case and in many others in literature, a glaucoma which will result in blindness, if the opportunity is not afforded to treat the patient, either because he does present himself in time, or having presented himself in time, he neglects advice and disappears from observation until it is too late to remedy the evil.

ORIGINAL ARTICLES.

THE ROENTGEN RAY IN OPHTHALMIC SURGERY.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY HOWARD F. HANSELL, A.M., M.D.
PHILADELPHIA, PA.

The discovery of Roentgen, that the soft tissues of the body were transparent to certain rays emitted from a vacuum tube when electrically stimulated, and its practical application to the uses of medicine and surgery mark a distinct epoch in the history of science. Experiments conducted by scientists the world over immediately confirmed the announcement of the mystic properties of the Roentgen or X-rays, and during the eighteen months that have passed continued experimentation has increased its applicability, widened its field of usefulness, defined in part its capabilities and limitations, and has given us every reason to believe that further research with improved apparatus and with a more profound knowledge of their intimate nature, will lead to still greater achievements. We may hope, for example, that by varying intensities of energy, or diminished duration of exposure or modification of the vacuum tubes, to inspect with some degree of clearness, the contents of organs of which we now barely see the outlines, to differentiate diseased from normal structure and to give to the X-ray the prominent place in medicine that it now occupies in surgery.

The attention of ophthalmologists was practically drawn to the utilization of the Roentgen process in ophthalmic surgery in the detection of foreign bodies such as glass and fragments of metal, in the interior of the eyeball, by the papers of Clark and Williams[1] which announced for the first time that the coats of the ball are penetrable by the rays, and that the presence of foreign bodies can be diagnosed by their shadows cast on negatives and developed by the ordinary photographic processes. In Clark's case the metal, the presence of which had hitherto been extremely uncertain, was discovered to be behind the iris near the corneoscleral angle. It was extracted by the Hirschberg magnet and the patient recovered almost the full acuity of vision. The method of using the apparatus was original and novel. A photographic film encased in water-proof covering, was inserted into

[1] Trans. Amer. Ophthal. Soc., July, 1896.

the nostril of the same side as the injured eye until its upper extremity lay in contact with the cribriform plate of the ethmoid bone. The Crookes' tube was stationed in front and to the same side of the head about thirteen inches distant from the eye. The rays passed through the envelopes of the eye, the nasal bone, the nasal process of the superior maxillary bone and the soft tissues, casting well-defined shadows of the bony parts and of the piece of metal. The diagnosis and cure were effected by the one force under two widely different manifestations. Williams's result in determining the applicability of the rays to the diagnosis was equally satisfactory, but unfortunately the severe accident destroyed both the sight and the ball. The patient was laid on his side on a table with the temple in contact with the glass plate and the tube held obliquely thirteen inches above and in front of the face. The rays pierced the eye, its adjacent soft tissues and the bones of the external wall of the orbit, the last casting its clearly defined shadow together with that of the foreign body, both readily distinguishable from other shadows on the plate. The history of the injury showed that the offending substance was copper, therefore the use of the magnet was precluded. The eye was enucleated and the diagnosis proven. It is interesting to observe that the different methods of experimentation resorted to in these two cases demonstrate respectively, that the nasal and temporal walls of the orbit offer no practical obstacle to the applicability of the Roentgen process in ophthalmic surgery, and that both results disprove the earlier experience that the ocular envelops themselves cast shadows so dense that that of a fragment of metal would be concealed[2].

The good work inaugurated in Columbus and Boston has been continued in Philadelphia with uniformly successful result. The labors of Stern in the polyclinic, of Goodspeed and Leonard in the university and of Sweet in the private laboratory of Queen & Co. have met with pronounced success. To the first named of the gentlemen I am indebted for excellent skiagraphs of the two cases reported below. After repeated experiments according to the methods of Clark and Williams, Dr. Stern succeeded by the simple device of bandaging the sensitive plate to the temple on the side of the wounded eye, allowing the patient to sit upright and suspending the tube in front of and to the opposite side at an angle of 45 degrees and fourteen inches distant, in obtaining pictures that showed beyond question the existence of foreign bodies within the ball. These are the first two successful cases in Philadelphia and demonstrate the claims previously made that the X-rays are an useful adjunct to the diagnostic resources of the ophthalmic surgeon.

During the past winter, with the able co-operation of Dr. Stern, I made a number of efforts to determine whether the rays had a beneficent or injurious effect on diseased and healthy eyes. It was found in cases of opacity of the media such as leucomatous cornea, capsular and lenticular cataract, that no improvement whatever could be noted either in the disease or in the ability of the patients to see clearer through the fluoroscope than without it. In a case of nearly absolute central scotoma due to a large patch of central retino-choroiditis, repeated exposure to the rays as they were emitted from the tube gave the same negative result. The findings in cases of atrophy of the optic nerve were equally discouraging. From these trials it was concluded, as a means of treatment of diseased conditions causing blindness, the rays were of no value. The only exception that I am able to make to this statement is recorded in the history of Case 1, when the exposure had the unexpected effect of soothing pain and reducing inflammation, but whether this happy result was simply a coincidence or a real or psychic manifestation can not be asserted. Dr. Wilkinson of the California School for the Blind, selected six pupils for testing, one with destruction of the anterior part of each eye from an old traumatism, one with complicated congenital cataract, one with partial phthisis bulbi from ophthalmia neonatorum, and three with optic nerve atrophy. In none did the rays assist the vision in the slightest degree. Beck[3], in speaking of the possible curative effects of the rays in zymotic diseases, states that the vitality of pathogenic bacteria is not impaired even after an exposure of several hours. As bearing on the subject of the sedative action of the rays mentioned as occurring in my first case, the report of their effect[4] on frogs is of interest. A frog was placed in a small wooden box toward which the rays were directed, while a control frog in a similar box was protected from the rays by a sheet of lead laid on top of the box. To each was administered .04 mg. of strychnia; the first showed no trace of intoxication, while the latter was found in tetanic convulsions. Bock's[5] suggestion that if persons blind from want of transparency of the media might be able to read letters painted on a card-board, that were varnished and dusted with powdered metal, if they were subjected to the action of the X-rays is impracticable unless a fluoroscope or some other impossible tungstate of calcium screen by which the shadows were rendered visible be placed behind the opaque cornea or lens. Otherwise this source of illumination is no more available than any other.

No cases of injury to the tissues of the eye from the action of the rays has been published even under the former prolonged exposures, and now with improved apparatus the danger of burning the skin or producing destruction of the hair bulbs is insignificant.

Case 1.—R. G., machinist, 25 years of age, applied at the out-patient department of the Jefferson Hospital in October, 1895, with the history of an injury to the left eye while breaking a cast-iron elbow with a hammer. The cornea presented a small, irregular cicatrix. The anterior capsule and the lens had commenced to opacify. The iris was inflamed and adherent to the capsule and vision was greatly reduced. No foreign substance could be seen in the imperfectly illuminated media or fundus. Under treatment the inflammation subsided and no operation was resorted to. The man was requested to return frequently for inspection. No severe symptoms developed, although the eye was subject to attacks of irritation until October, 1896, one year later, when irido cyclitis supervened. The patient was now subjected to the X-rays, and after most creditable perseverance Dr. Stern succeeded in obtaining a shadow picture that showed the presence of a piece of metal probably located in the anterior portion of the vitreous body. It is interesting to note that one of the exposures was made during an attack of irido-cyclitis. The patient voluntarily stated that the pain was promptly and entirely relieved, and it was observed that the marked injection was greatly reduced. After an unsuccessful attempt at extraction by the Hirschberg magnet the ball was enucleated. Upon section, a scale of iron 2 mm. in length, $\frac{1}{2}$ mm. in width, was found firmly imbedded in the ciliary body and surrounded by a mass of exudation.

Case 2.—F. N. was admitted to the wards of the Jefferson Hospital Nov. 14, 1896. While chiseling a cast-iron staircase he received a wound in the left eye. The skin and cartilages of both lids, particularly the lower, were the seat of ragged wounds. The conjunctiva was cut; the cornea opened in its

[2] Amer. Jour. of the Med. Sci., March, 1896.

[3] Trans. Pan-Amer. Cong., Mexico, 1896.

[4] St. Peters. med. Wochens. No. 1, 1897.

[5] Memorabilien, February, 1897.

oblique diameter; the iris protruded in part through the wound in the cornea; the lens had escaped, part of the vitreous was lost and the anterior chamber was full of blood. The edges of the wound in the lid were united by suture, the torn iris and protruding vitreous cut away and the eye antiseptically dressed and bandaged. The patient asserted positively that the iron inflicting the injury was too large to be lodged within the ball and from the extent of the superficial wounds I was inclined to concur in this opinion. After a week's vain effort to save the ball the X-rays were applied and the eye enucleated. No sections of the ball were made until after Dr. Stern's skiagraph showed positively the presence of a large piece of metal in the vitreous. Subsequently a fragment of cast-iron weighing 3 grains, of irregular shape and with very sharp jagged edges, was found in the anterior portion of the vitreous.

Thus in two instances, in October and November, 1896, respectively, skiagraphy demonstrated beyond question the presence and approximate location of pieces of metal within the eyeball. In the one the condition had been assumed, in the second, the earlier diagnosis had been proven incorrect.

The next two cases in Philadelphia, reported by Ring and de Schweinitz before the Ophthalmic Section of the College of Physicians, and published in its "Transactions," Jan. 19 and Feb. 16, 1897, may be briefly referred to. In Ring's case, a piece of steel had penetrated the vitreous eighteen months before. Two radiographs were exhibited, showing the presence and probable site of the foreign body. The Hirschberg magnet was powerless to dislodge it from its bed in the ciliary body and the ball was enucleated. De Schweinitz succeeded in establishing the diagnosis by the rays, in extracting the metal after two futile attempts by other surgeons and in restoring useful vision. The following case, the last of the published series in Philadelphia, was reported before the same section in February, 1897, by Dr. A. G. Thomson. A small piece of steel had lodged in the posterior portion of the lens in a young man. Because of the continued transparency of the lens some doubt was felt as to the nature of the foreign body. A series of skiagraphs taken by Dr. W. M. Sweet, demonstrated beyond question that the foreign substance was impenetrable to the rays. Dr. Wm. Thomson subsequently extracted the lens and with it the supposed metal. Following Dr. Thomson in his detailed description of the treatment of the case read before the Amer. Ophthal. Soc. May, 1897, Dr. Sweet demonstrated his method of localizing foreign bodies in the eye, which has proven, both in this case and in others not yet published, accurate and of great value. Dr. Chas. A. Oliver reported at the same meeting, the results of his own and Dr. Leonard's methods of localization based on practically the same principle as that described by Sweet.

It is evident, therefore, that the Roentgen process, even at this comparatively early period in experimentation, while our knowledge of the properties of the rays is limited and immature, is an extremely valuable means of diagnosis in the surgery of the eye, and it is believed that continued investigation will not only confirm the claims and statements made in this paper, but will add to our conviction that in the X-rays we have an accurate, reliable and speedy method of establishing the presence or absence of foreign bodies in the eyeball.

Resignation of Professor Forel.—The celebrated alienist, Forel, has resigned the superintendency of the asylum at Burgholzli, and also announces that he will soon retire from his professorship at Zurich, in order to devote himself entirely to his studies of comparative anatomy, especially anatomy of the brain.

THE ROENTGEN RAYS IN OPHTHALMIC SURGERY.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY WILLIAM M. SWEET, M.D.

PHILADELPHIA, PA.

The value of the Roentgen rays as a means of determining the presence of pieces of metal in the eyeball has been conclusively shown by the experiments of a number of investigators, the earliest workers in this field being Dr. Clark of Columbus, Dr. Williams of Boston and Dr. Max J. Stern of this city. The knowledge that a foreign body is in the eye, however, is not all the information required by the surgeon who operates with the electromagnet for its removal. Without some indication of the position of the body, it is not possible to reduce the percentage of failures of the magnet operation. The ordinary radiograph does not accurately indicate the position of the shadow of the foreign body on the plate in relation to the shadows of the bones of the head. Hence it is desirable to state the exact spot at which to insert the magnet with the least injury to the structures of the eye.

The first attempt to determine the approximate location of foreign bodies in the eye by means of metal indicators placed without the ball, was made by Dr. H. Lewkowitch, and reported in the London *Lancet* for Aug. 15, 1896. In these experiments, which were made on sheep's eyes and the doctor's own eyes, the indicator consisted of a piece of wire placed in front of the eye, one of the arms of the apparatus pointing to the center of the cornea. Only the anterior portion of the eyeball was included in the radiograph, the eye being rotated inward or outward to include a larger part of the globe. The determination of the position of the foreign body was then made by a triangulation of two shadows on the plate cast by the foreign body, by moving the tube a known distance from the first position in making the second exposure. The photographic plate was placed at the inner canthus. In addition to these complications, and the liability of error in determining the angles of the tube in its two positions with the plate and the foreign body, the method is open to the objection that only a small portion of the eyeball is included in the radiograph.

In my early experiments with pigs' eyes placed in the ordinary Viennese mask, it was found that unless the rays were passed through some portion of the bony walls of the orbit, foreign bodies in the posterior portion of the vitreous chamber could not be shown.

In the first experiments which I made upon the human subject, the photographic plate was inserted at the inner canthus. Photographic films were used, as being more readily cut to the shape desired. Each plate-holder carried two films, and two negatives were thereby secured at each exposure, thus avoiding errors arising from imperfections in the film coating.

The indicating apparatus consisted of an aluminum frame, carrying three steel rods, each with a rounded end. The rounded extremities were adjusted to the inner and outer canthus and to the eyeball at the center of the upper lid. Two exposures were made, one with the Crookes' tube on a line with the inner and outer indicators, and the other below the horizontal plane of these indicators. In determining the position of the foreign body in the eye, the apparatus was attached to a fixed support and a lighted candle

employed to cast the shadows of the indicators on a card board similarly to those made on the negatives by the X-rays. A small object was then held in such a position that its shadow was identical with that of the foreign body. The candle was moved until the shadows of the indicators corresponded to those on the second negative. The crossing of the two lines of shadow of the test object represented the situation of the foreign body.

This method of marking was first employed in the case of a young man with a piece of steel in the lens, sent to me by Dr. A. G. Thomson. From a number of negatives I located the body 7 mm. behind the center of the cornea, and about a millimeter to the nasal side. Dr. William Thomson subsequently removed the soft and opaque lens with the piece of steel imbedded in it.

While the use of the photographic plate at the inner canthus has the advantage of bringing the sensitive film much closer to the eyeball than when in any other position, an important consideration when dealing with very small objects, it has the objection that the whole eyeball is not included on the plate. For this reason, and also because of the imperfect coating of the celluloid films, I have since used glass plates bandaged to the temple. Instead of three indicators, two only are now used.

The principle of employing two objects of known position to locate the situation of a third object from the shadows cast by these objects upon a flat surface, is extremely simple. For all practical purposes we may regard the rays from a Crookes' tube at least thirteen inches away, as being parallel in passing through a body as small as the eye. Therefore if the relative position of two objects is known, we can readily determine the situation of the third. In employing this principle in locating foreign bodies in the eye, three factors are of importance, viz., that the two indicating objects shall be at a known distance apart, and shall be parallel to each other and to the plate, and also in a perpendicular line with the plate; that one object shall point to the center of the cornea and be at a known distance from the eyeball; and that the visual axis shall be parallel to the indicators and to the plate. With the above facts known, the angle of the tube with the plate is unimportant.

The indicators may be supported by a headband and the plate held in place by an ordinary bandage, although more accurate results are obtained by employing a special form of apparatus, in which the indicators are attached to the plate holder, and are at all times parallel to each other and to the plate. The indicators are adjustable, so that one may be placed opposite the center of the cornea while the other is toward the outer canthus.

In making the negatives the tube is in front, about thirteen inches from the plate and at an angle of from 15 to 40 degrees with a vertical plane passing through the apex of each cornea. The plate is to the opposite side of the head and the rays pass through the eyeball and the external orbital wall before reaching the sensitive film. Two exposures are made, one with the tube in a horizontal plane with the two indicators and the other at any distance below. The angle of the tube below the horizontal is unimportant so long as the two exposures give different relations of the indicators on the negatives.

In determining the position of the foreign body in the eye, two circles, 24 mm. in diameter (equivalent to the size of the globe) are drawn upon paper. One circle represents a horizontal section of the eyeball and the other a vertical section. Upon the vertical section a spot is made at the center of the circle, indicating the position of the central indicator of the

Indicating apparatus supported by head band, and plate held in place by bandage.

apparatus. The distance between the two indicators is measured toward the temporal side and a spot made to show the position of the external indicator.

On the circle representing a horizontal section of the eyeball, a spot is made anterior to the center of the cornea and at the same distance that the center

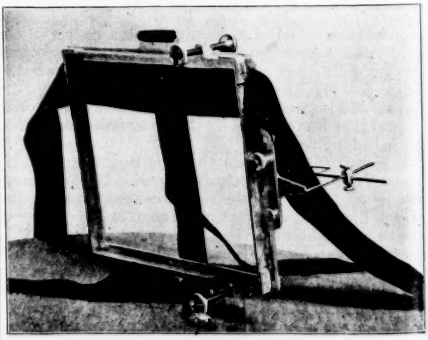
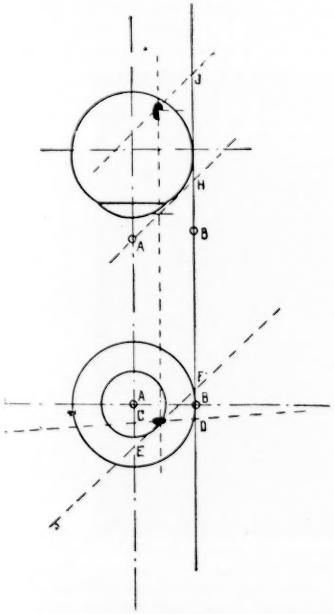


Plate-holder, with indicating apparatus attached.

indicator was from the eye when the radiograph was made. Another spot to the temporal side, measured by the distance between the two balls of the apparatus, marks the situation of the external indicator.

By taking the first negative with the tube horizon-

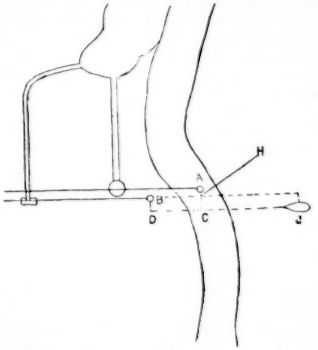
tal to the two indicators, we measure the distance of the foreign body above or below the two balls of the apparatus. These measurements are indicated on the circle representing the vertical section of the eye and a line is drawn through the points. At some point along this line is situated the foreign body. From the second negative made with the tube below the plane of the two indicators, the measurement is taken of the distance the shadow of the foreign body is above or below the center indicator, and this point is indicated on the first circle. The same measurements are made for the external indicator. Where a line drawn through these two points crosses the line of measurements made from the first plate is the situation of the foreign body as respects its horizontal and vertical position in the eyeball.



Diagrammatic circles of the eye, upon which measurements from the negatives are made to show location of foreign body. Upper circle, horizontal section; lower circle, vertical section of eyeball.

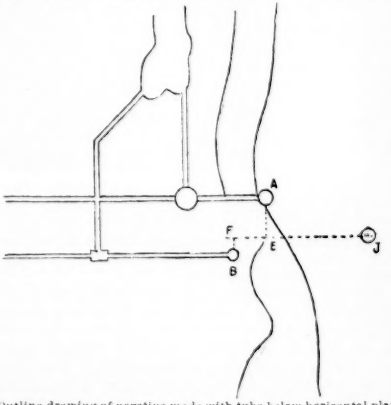
To determine the distance of the foreign body behind the apex of the cornea, one of the negatives is taken and a measurement made of the distance the shadow of the center ball is posterior to that of the external ball. The distance is entered directly above the external ball on the diagram representing the horizontal section of the eye. From this point a line is drawn through the ball of the center indicator, which indicates the direction of the rays from the tube when the exposure was made. Taking the plate again, we measure the distance that the shadow of the foreign body is back of that of the external indicator. This distance is marked perpendicularly to the spot representing the ball of the external indicator on the diagram and a line is drawn parallel to the direction of the rays from the tube. Where this line cuts a line perpendicular to the position of the foreign body shown on the vertical section of the eyeball is the distance the foreign body is behind the anterior portion of the cornea. Where the foreign body is outside the eyeball, this fact will be indicated by the crossing of the lines beyond the diagrammatic circles.

The first patient upon whom I employed this method was a young man, 20 years of age, a machinist by occupation. Six months prior to coming to Wills Eye Hospital a piece of steel struck him in the left eye. Dr. William Thomson referred the case to me



Outline drawing of negative made with tube nearly horizontal with plane of indicators.

to determine the presence of a foreign body and its probable location. Examination, in April, 1897, showed a scar in the sclera, 3 mm. from the corneal margin on the temporal side, starting from the horizontal plane and extending downward, almost vertically about 4 mm. The ophthalmoscope failed to reveal the presence of a foreign body but showed a cone-shaped mass of new tissue extending through the vitreous, with the apex at the disc. The visual field was lost centrally and to the nasal side, but partially preserved downward and outward.



Outline drawing of negative made with tube below horizontal plane of the two indicators.

A number of radiographs were made with the Crookes' tube in various positions and in each of the

employed to cast the shadows of the indicators on a card board similarly to those made on the negatives by the X-rays. A small object was then held in such a position that its shadow was identical with that of the foreign body. The candle was moved until the shadows of the indicators corresponded to those on the second negative. The crossing of the two lines of shadow of the test object represented the situation of the foreign body.

This method of marking was first employed in the case of a young man with a piece of steel in the lens, sent to me by Dr. A. G. Thomson. From a number of negatives I located the body 7 mm. behind the center of the cornea, and about a millimeter to the nasal side. Dr. William Thomson subsequently removed the soft and opaque lens with the piece of steel imbedded in it.

While the use of the photographic plate at the inner canthus has the advantage of bringing the sensitive film much closer to the eyeball than when in any other position, an important consideration when dealing with very small objects, it has the objection that the whole eyeball is not included on the plate. For this reason, and also because of the imperfect coating of the celluloid films, I have since used glass plates bandaged to the temple. Instead of three indicators, two only are now used.

The principle of employing two objects of known position to locate the situation of a third object from the shadows cast by these objects upon a flat surface, is extremely simple. For all practical purposes we may regard the rays from a Crookes' tube at least thirteen inches away, as being parallel in passing through a body as small as the eye. Therefore if the relative position of two objects is known, we can readily determine the situation of the third. In employing this principle in locating foreign bodies in the eye, three factors are of importance, viz., that the two indicating objects shall be at a known distance apart, and shall be parallel to each other and to the plate, and also in a perpendicular line with the plate; that one object shall point to the center of the cornea and be at a known distance from the eyeball; and that the visual axis shall be parallel to the indicators and to the plate. With the above facts known, the angle of the tube with the plate is unimportant.

The indicators may be supported by a headband and the plate held in place by an ordinary bandage, although more accurate results are obtained by employing a special form of apparatus, in which the indicators are attached to the plate holder, and are at all times parallel to each other and to the plate. The indicators are adjustable, so that one may be placed opposite the center of the cornea while the other is toward the outer canthus.

In making the negatives the tube is in front, about thirteen inches from the plate and at an angle of from 15 to 40 degrees with a vertical plane passing through the apex of each cornea. The plate is to the opposite side of the head and the rays pass through the eyeball and the external orbital wall before reaching the sensitive film. Two exposures are made, one with the tube in a horizontal plane with the two indicators and the other at any distance below. The angle of the tube below the horizontal is unimportant so long as the two exposures give different relations of the indicators on the negatives.

In determining the position of the foreign body in the eye, two circles, 24 mm. in diameter (equivalent to the size of the globe) are drawn upon paper. One circle represents a horizontal section of the eyeball and the other a vertical section. Upon the vertical section a spot is made at the center of the circle, indicating the position of the central indicator of the

Indicating apparatus supported by head band, and plate held in place by bandage.

apparatus. The distance between the two indicators is measured toward the temporal side and a spot made to show the position of the external indicator.

On the circle representing a horizontal section of the eyeball, a spot is made anterior to the center of the cornea and at the same distance that the center

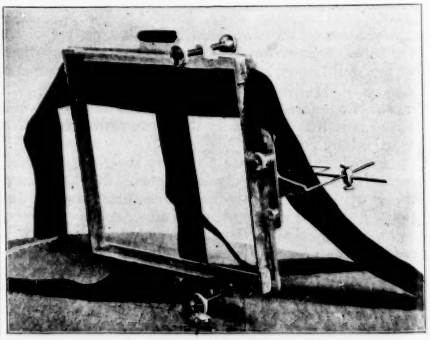
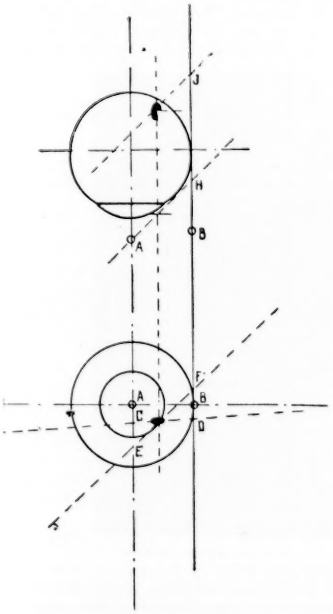


Plate-holder, with indicating apparatus attached.

indicator was from the eye when the radiograph was made. Another spot to the temporal side, measured by the distance between the two balls of the apparatus, marks the situation of the external indicator.

By taking the first negative with the tube horizon-

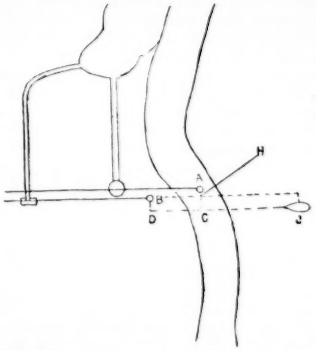
tal to the two indicators, we measure the distance of the foreign body above or below the two balls of the apparatus. These measurements are indicated on the circle representing the vertical section of the eye and a line is drawn through the points. At some point along this line is situated the foreign body. From the second negative made with the tube below the plane of the two indicators, the measurement is taken of the distance the shadow of the foreign body is above or below the center indicator, and this point is indicated on the first circle. The same measurements are made for the external indicator. Where a line drawn through these two points crosses the line of measurements made from the first plate is the situation of the foreign body as respects its horizontal and vertical position in the eyeball.



Diagrammatic circles of the eye, upon which measurements from the negatives are made to show location of foreign body. Upper circle, horizontal section; lower circle, vertical section of eyeball.

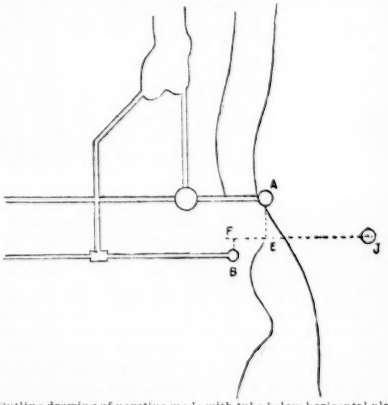
To determine the distance of the foreign body behind the apex of the cornea, one of the negatives is taken and a measurement made of the distance the shadow of the center ball is posterior to that of the external ball. The distance is entered directly above the external ball on the diagram representing the horizontal section of the eye. From this point a line is drawn through the ball of the center indicator, which indicates the direction of the rays from the tube when the exposure was made. Taking the plate again, we measure the distance that the shadow of the foreign body is back of that of the external indicator. This distance is marked perpendicularly to the spot representing the ball of the external indicator on the diagram and a line is drawn parallel to the direction of the rays from the tube. Where this line cuts a line perpendicular to the position of the foreign body shown on the vertical section of the eyeball is the distance the foreign body is behind the anterior portion of the cornea. Where the foreign body is outside the eyeball, this fact will be indicated by the crossing of the lines beyond the diagrammatic circles.

The first patient upon whom I employed this method was a young man, 20 years of age, a machinist by occupation. Six months prior to coming to Wills Eye Hospital a piece of steel struck him in the left eye. Dr. William Thomson referred the case to me



Outline drawing of negative made with tube nearly horizontal with plane of indicators.

to determine the presence of a foreign body and its probable location. Examination, in April, 1897, showed a scar in the sclera, 3 mm. from the corneal margin on the temporal side, starting from the hori-



Outline drawing of negative made with tube below horizontal plane of the two indicators.

zontal plane and extending downward, almost vertically about 4 mm. The ophthalmoscope failed to reveal the presence of a foreign body but showed a cone-shaped mass of new tissue extending through the vitreous, with the apex at the disc. The visual field was lost centrally and to the nasal side, but partially preserved downward and outward.

A number of radiographs were made with the Crookes' tube in various positions and in each of the

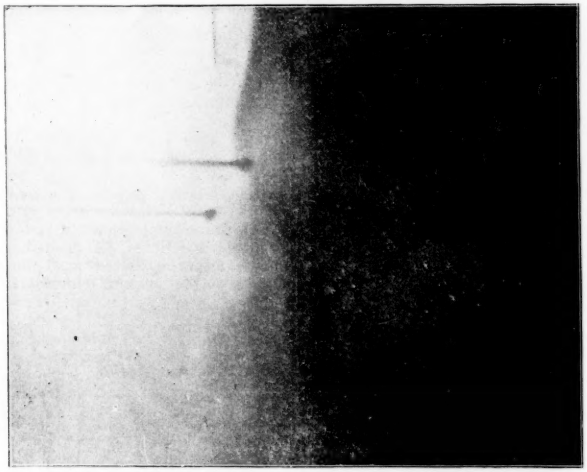
negatives the shadow cast by a foreign body was plainly visible. The two indicators in each exposure were 12 mm. apart, while the ball of the center indicator was 4 mm. from the apex of the cornea. The external indicator was inadvertently placed 2 mm. nearer the eyeball than the center indicator. This difference is allowed for on the diagrams. The exposures averaged four minutes each. Employing the method previously described, the measurements from the negatives indicated the position of the center of the foreign body to be a point 20 mm. from the center of the cornea, 5 mm. to the temporal side and 3 mm. below the horizontal plane. The negatives also gave the probable size of the body to be 4 mm. long, 2.5 mm. wide and 1 mm. thick.

In reporting the case at the Washington meeting of the American Ophthalmological Society, Dr. Thomson stated that, owing to the mass of tissues surrounding the body it was found to be impossible to remove it by the magnet and that recourse was had to dissection. The body was extracted with some of the cicatricial mass surrounding it from a point in the sclera corresponding to that shown in the diagrams made from the radiographs.

The second patient from whom radiographs of the eye were obtained came to the Polyclinic Hospital to have a piece of steel removed from the surface of the cornea. Dr. H. F. Hansell noticed that the right lens was opaque and, suspecting a foreign body in the eye, asked me to make some X-ray pictures. The man, a machinist by occupation, stated that he had been blind in the eye for several years and had never suffered any pain or irritation from it. A number of negatives were made, and in each instance two shadows made by foreign bodies were shown upon the plates, one in the region of the eye and the other about an inch below the eye. There was every reason to suspect that one of the bodies was in the eye or in the orbit, but upon employing the system of measurements previously described with several sets of negatives, the body in every instance was shown to be situated at a point corresponding to the tissue covering the outer and upper crest of the orbit. The other foreign substance was in the skin of the nose. The man has failed to appear since the negatives were made, so that no opportunity was furnished to verify the findings.

I also employed the rays on a patient sent to me by Dr. Jackson, who presented the history of a piece of metal flying into the eye twenty years ago. Ophthalmoscopic examination by Dr. Jackson and by many other gentlemen at the time the case was shown at a meeting of the section on ophthalmology of the College of Physicians, showed a dark mass lying to the temporal side of the disc, about one-half millimeter long and one-third millimeter in width, in an area of atrophied choroid and pigment deposit rather smaller than the disc.

Notwithstanding that over a dozen negatives were made of the case at different times with Crooke's tubes running under various degrees of vacuum and placed at various positions, no evidence of a foreign body was shown on a single negative.



Radiograph. John Routledge. Tube below horizontal plane of indicators. Exposure four minutes. Queen Self-regulating X-ray Tube.

The failure of the Roentgen rays to show on the photographic plate the presence of a foreign body in the eye of the patient of Dr. Jackson, when the ophthalmoscopic examination apparently indicated the existence of a body in the eye, led me to make a number of experiments on the cadaver to determine if possible:

1. Whether very small metallic bodies in the eye could be located by means of the Roentgen rays.
2. To what extent the bones of the orbit interfered with the passage of the rays.
3. The character of the tube and the vacuum at which it should be operated to give the best results.
4. The best point at which to place the tube.

Experiments were made in the pathologic laboratory of Jefferson Medical College on a fresh, well-developed male subject. The shrunken eyeballs were removed and fresh pigs' eyes employed in which pieces of iron had been inserted. In this way the nearest

approach to the ordinary conditions met with in the live subject was secured.

In making the experiments exposures were made with two forms of the Queen self-regulating X-ray tube. In one tube the rays from the concave cathode focused to a small point on the platinum plate, while in the second tube the focus was larger. In one of the pig's eyes a piece of fine wire was passed through the center of the globe in its antero-posterior diameter. In another pig's eye three pieces of wire, about one and one-half inches long, were inserted in the nasal half of the pig's eye, entering it at the corneo-scleral margin and passing through the ball to the retina. The wires were respectively .9, .5 and .3 mm. in diameter. The largest piece was partially cut through at intervals of 1 mm. In a third pig's eye, pieces of iron were inserted in the ball, each about 1 mm. long and varying in thickness from .3 to 1 mm. The bodies were inserted in the eye at the nasal side. A number of exposures were made with each tube, several at an angle of fifteen degrees with a vertical plane passing through the two eyes, and a number at an angle of about forty degrees in front of this plane.

Radiograph. John Routledge. Tube nearly horizontal with plane of indicators. Exposure four minutes. Queen Self-regulating tube.

These experiments seemed to leave no doubt as to the great superiority of the small focus point tube as compared with that of large focus. The shadow of even the finest wire is distinctly shown on the negatives made with the former, while in those made with the latter, the shadow of the wire is blurred and indistinct. This is in harmony with the well-known fact that the distinctness of the shadow of an object some distance from a plane surface depends on the size of the source of light, and where the point of illumination is large, as compared with the size of the object, the shadow cast may be indistinct or even imperceptible.

The negatives also show to what small degree the bones of the orbit obstruct the rays. The thickest portion of the external orbital wall is where the frontal and malar bones join, forming the external angle of the orbit. In the deeper portion of the orbital wall the bones are relatively thin. Notwithstanding the difference in the thickness of the bones, the shadows cast by the steel wires are perfectly distinct throughout their entire length. In making radiographs of the eye, the best results are secured when the tube is run at high vacuum, so that there shall be great penetration of the ball and the muscular and bony structures. In this way the shadow of the denser metallic body is more clearly shown upon the plate.

In the experiment with the small bodies in the eye, the superiority of the small point focus tube for eye work was again shown. The exposures made with the large point focus tube failed to show any shadows on the plates of the bodies in the eye, while in the negatives made with the small point focus tube, each of the five foreign bodies can be clearly seen. In dealing with the live subject the possible slight movement of the head during the exposure is a factor of importance.

In my experiments I have used several makes of Crookes' tubes, although the majority of the exposures were made with the Queen self-regulating tube. In this tube by an ingenious arrangement of a shunt circuit, the current passes around the tube when the vacuum becomes too high, heating up an auxiliary bulb of potassium hydrate and bringing down the vacuum. The gap in the shunt circuit may be adjusted to any desired vacuum, and the tube then runs automatically, irrespective of the length of exposure. The time of exposure was varied from two to six minutes, four minutes appearing to give perfectly satisfactory results, although in one instance an exposure of thirty-five seconds gave an negative of excellent detail.

Both X-ray plates and rapid landscape plates were used in the experiments, and so far as could be seen from the negatives, the landscape plates gave as good detail and as sharp outline of the foreign bodies as those made with specially prepared X-ray plates, besides which the landscape plates required much less time in developing and fixing.

In carrying out the experiments, Queen & Co. of Philadelphia kindly placed at my disposal their X-ray laboratory, with full facilities for testing the value of various forms of tubes and apparatus. Throughout the work I have had the assistance of Mr. H. Lyman Sayen, the expert of the laboratory, whose help has been of value in contributing to the success of the experiments.

DISCUSSION.

Dr. C. F. CLARK of Columbus—The only two points I can take up that are perhaps of some importance, and which have not been dwelt on very thoroughly, are questions as to the method and as to possible accidents. The question of holding the plate in the angle of the eye has been touched on. That is the method I found most satisfactory in the first case I had; it was a very minute piece of metal imbedded in the base of the iris and it was impossible to locate it without this method. Every other method had been tried. The patient had good vision and I could get a perfect view of the fundus, and though there was a chance to save the eye, and I did save it. If I had used the ordinary method I believe I would have failed. I held the plate next the nose for eight minutes while the patient sat in the chair, and it proved very satisfactory. The piece of metal was 1.5 mm. thick.

As to accidents, I heard a paper by Dr. Scott of Cleveland, not the oculist, but a physician there who had found, in recording the cases given throughout the country, some fifty or sixty cases of accidents from the use of the Roentgen rays. In one of my cases, which I made no report of because the result was negative, the patient came back with the usual result as shown on the skin. A dermatitis had set up, the hair over the whole exposed region had fallen out and though it returned after a few months it was white. Dr. Scott says he has found that these accidents occur with every form of apparatus and in whatever way it is used. All the precautions now known may be taken and still this may result. The apparatus we used was perfect and yet a few weeks later his

wife remarked that "the barber had cut his hair too close," and when finally he came to me the head was absolutely bare at the exposed points.

In regard to the method, I tried some experiments with inserting the plate into the nose, getting the thin bones of the ethmoid as the only resistance. I do not know whether it can be retained long enough to take a good picture.

Dr. MAX J. STERN of Philadelphia—At the request of my friend and colleague, Dr. Hansell, I undertook a series of experiments last year, and developed our present method of taking the pictures. I recognized that the simpler this method is made the better the results must be. The way I started out was to bandage the plate to the side of the head and I have determined that that is by far the best way to take them. I allow the plate to overflap the face one or two inches, tilting it a little forward. The exposure has been reduced from forty or forty-five minutes to one-half a minute, which I now consider sufficient. I have now been using the higher vacuum tubes which give a much shorter definition and better penetration, and one-half minute is sufficient to get a foreign body anywhere in the eye. The tube is always placed eight inches from the face.

The admirable pictures shown by Dr. Sweet certainly shows his to be a good method, but I never used it because I believe that the shortness of the image and a knowledge of the anatomic points will, in the majority of cases at least, give the location of the body. There are two planes always shown in these pictures, the one at right angles to the other, and with these and the known location of the tube the object can be located. The closer the object to the plate the clearer will the shadow be, and the greater the haziness the further is the object from the plate. I always fix the patient's eye in a line with the pin point from which my X-rays emanate. A body seen directly in that line will show the plane in which the object lies. In this way the diagnosis can be made as to position. In Dr. de Schweinitz's case the location was pointed out, the body cut down upon and removed. The same was done in Dr. Hansell's case.

Dr. LUCIEN HOWE of Buffalo—After such an excellent presentation as we have had I hesitate to show such imperfect work as I have done; still there is one point which one of the pictures illustrates that has not been touched upon. I present these two pictures [passing them]. The first one shows two rabbit's eyes, a needle having been passed through one with the object of showing how distinctly the object could be traced. The second was an attempt to ascertain the relative opacity of different portions of the eye. Taking the eye of the hog and putting it in the curtain ring and having the rays come down upon it I thought I might get some hint of the relative opacity. It was imperfect but shows that the lens region is the most opaque.

Dr. ALBERT B. HALE of Chicago—I want to report one failure in the use of the ray. It was similar to the experiment just reported. The case was that of a girl of 20 years, who, several years ago, had one discission performed for a high grade of myopia. She had never gone back for another examination. When I found her the vision was very much reduced in that eye. Ophthalmoscopic examination showed the iris adherent to what was left of the capsule in an irregular way, but there had been no great iritis. In order to see what the lack of vision was due to, I had a photograph taken, which showed very distinctly the opacity of lens substance as mentioned by Dr. Howe. The question occurred to me, has the lens matter left there become opaque or has the vitreous become atrophied and induced atrophy of the retina. There was distinct opacity where the lens ought to be. Encouraged to think it was the lens, and that if removed rays of light might pass more readily, I did a very thorough discission. With the ophthalmoscope you could see very much further in toward the fundus. But there was no improvement of vision.

Dr. A. N. ALLING of New Haven—I am interested in these papers because I made a few experiments and came to the conclusion that it was possible to locate a body by these means. I must say, however, that I think cases in which this is a great help are extremely rare, that is, where our treatment of the case would be modified by the result of this experiment. It is of scientific interest more than of practical service.

Dr. J. A. LIPPINCOTT of Pittsburg—I would like to report briefly a case of this kind where I obtained a very satisfactory skiagraph of a body in the lower part of the eyeball. The case was an easy one, as the foreign body was large, being 2 cm. long and 1 cm. thick. Its position was satisfactorily demonstrated and we were enabled to extract it with a powerful magnet.

Dr. WILLIAM THOMSON of Philadelphia—In regard to the value of diagnosis in this case of Dr. Sweet, the wound of entrance was in the ciliary region and when I saw the man, vision was almost entirely lost. The media were transparent to the inner half, but to the outer part you could see a connective tissue deposit about the wound of entrance and back of that the retina seemed to be separated and there was a distinct tract of connective tissue in the vitreous. The papilla could be distinctly seen and the vessels were swollen. I became satisfied that it was impossible to gain any further knowledge of the condition by such examination and that it would have to be determined by the X-rays. This was done by Dr. Sweet and with great satisfaction I was able to do what I promised the patient. The eye was turned strongly toward the inner canthus and I passed a strong magnet in but failed to remove the metal because it was entirely encapsulated. I then passed a strabismus hook into the wound, picked up the mass of connective tissue and with a little effort brought it forward to the lips of the wound. I then passed the hook back and forth to see if I could detach this tissue, but failed. I then seized it with forceps and with the scissors cut it from its attachments, and upon removing it found the foreign body encased. When the mass was placed in the hand and a magnet approached it, it would move but could not of course adhere to it. One of my friends asked me when I concluded the operation, "Doctor, when will you remove the eye?" It did not seem to me necessary to do so, and a week later the eye was in good condition and now it is all right, though the pupil is blocked by a dense mass of connective tissue.

Dr. G. E. DE SCHWEINITZ of Philadelphia—Through the skill of my friend, Dr. Stern, I think I have saved at least one eye by the use of the X-rays. The details were localized without the excellent apparatus of Dr. Sweet which we did not have at hand at that time. It is now five months since the operation and the vision is 20-50.

THE ELECTROMAGNET OF HAAB IN THE REMOVAL OF PIECES OF STEEL FROM THE INTERIOR OF THE EYE.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN E. WEEKS, M.D.

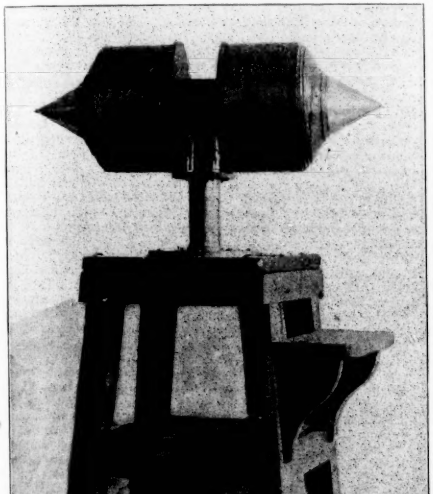
NEW YORK, N. Y.

The introduction of the large magnet for the removal of pieces of steel or iron from the interior of the eye, which we owe to the enterprise of Prof. O. Haab of Zurich, provides us with an instrument of much value in a large proportion of such cases. It is of no value whatever in the cases where the foreign body in the interior of the eye is non-magnetic; fortunately such cases are not the most common.

Haab's interest in strong magnets for this purpose was engaged by the first case which he reports ("Trans. Oph. Soc.," Heidelberg, 1892, p. 162). The patient was a woman 32 years of age. On June 10, 1892, a piece of steel passed through the cornea and anterior chamber and lodged in the posterior part of the lens projecting into the vitreous. Haab thought that if he could bring the piece of steel into the anterior chamber its removal would be easy. Three weeks after the accident, the patient was placed so that the cornea approached the conical end of the soft iron core of a large electromagnet belonging to the physiologic laboratory in Zurich, and Haab was overjoyed to see the piece of steel retraverse the path which it had made through the lens and lodge in the anterior chamber, from which place it was easily removed. The results obtained by the use of a large magnet in three cases caused Haab (*Beiträge z. Augenheilk.*, vol. xiii, p. 68) to have a special magnet made after designs suggested by Professor Kleiner in charge of the physical laboratory of the high school in Zurich. The dimensions are as follows:

Core of soft iron; diameter, 10 cm.; length, 66 cm.; weight, 30 kg.; beveled at the ends at an angle of

about 65 degrees to the perpendicular at the base of the cone. The point on either end is made to screw on so that more elongated and smaller points may be attached. Two spools of insulated copper wire are fitted to the core. These spools are separated from each other by an interval of 7 cm. The spools are composed of insulated copper wire 2 mm. in diameter which is wound in layers until the spool reaches the diameter of 23 cm. The spools are beveled at the ends corresponding to the core. The connection is made by means of the wire that enters each coil at its mesial aspect. The magnet is held in position by means of a brass stand to which it is pivoted, and the brass stand is attached to a suitable support. Haab's magnet, after which the one at the New York Eye and Ear Infirmary was constructed, employs a current of 50 to 60 volts and 6 to 8 amperes. The magnet will



Electromagnet. Pulling in straight line from point of tip, 6 pounds. Pulling with two pieces on steel placed on side of cone, 15 pounds. Pulling with piece of steel placed endwise on base, 7 pounds.

carry a current of 20 to 30 amperes for a short time.

Strength of the magnet.—Attraction for 1 gram of iron placed 5 mm. from the point of the magnet, 5.6 amperes, 113 grams; 7.9 amperes, 213 grams. Distance 10 mm., 5.4 amperes, 24 grams; 8.2 amperes, 63 grams; 10 amperes, 93 grams. Distance 15 mm., 6.4 amperes, 18 grams; 10.5 amperes, 63 grams.

A glance at these figures will suffice to acquaint one with the rapid increase in the power of the magnet with an increase of the tension of the current, also the rapid decrease of the attractive force on increasing the distance from the magnet.

By experiments Haab found that a piece of iron weighing 0.02 grams, lodged in the posterior part of the vitreous chamber could be made to pass through the vitreous and zonula and to engage in the iris by placing the cornea against the point of the magnet, but not through the lens or iris. The larger the foreign body the greater is the attractive force exerted.

Haab's idea was not that the large powerful electromagnet would supplant the small electromagnet, but that in certain cases it would serve to remove the foreign body through the original wound; in some cases it would serve to bring the piece of iron or steel to a part of the eye where it could be easily removed by incision and use of the small magnet, and in still other cases it could be employed for diagnostic purposes. All of these procedures are valuable and can not be so readily accomplished by any other means.

The following cases, occurring in the author's practice are illustrative:

Case 1.—August S. (*Arch. of Oph.*, xxvi, p. 84) aged 15 years, came to my office May 3, 1896. About eighteen hours before, while playing with two hammers, striking one against the other, a bit of steel broke off and struck him in the left eye. The patient consulted Dr. Knapp, who kindly sent him to me with the request that a trial be made to remove the foreign body with the large electromagnet in possession of the New York Eye and Ear Infirmary.

Status præsens.—A small curved wound 2.5 millimeters in length, from which a bead of vitreous and a piece of iris protrudes, is observed at the limbus conjunctivæ to the inner margin of the cornea and on the horizontal meridian of the globe. The anterior chamber is partly filled with blood. Pupil oval and drawn to the nasal side; it measures 5 by 8.5 millimeters. There is some blood in the vitreous chamber. Tension – 2. Vision = perception of light. The patient was immediately sent to the Eye and Ear Infirmary, admitted on my service and prepared for operation. Dr. Knapp and many others were present at the operation. Under cocain anesthesia, the prolapsing iris and vitreous were excised. The wound was then enlarged by continuing the incisions in the limbus above and below, 2 millimeters at each end, and by making an incision 2 millimeters long into the corneal tissue at right angles with the vertical incision; the whole forming a T-shaped wound. The patient was then approached to the sterilized point of the great magnet, and when the eye was within about 4 millimeters from the conical end of the magnet, the piece of steel flew from the wound in the eyeball and adhered to the point of the magnet. The pillars of the coloboma were replaced, the margins of the wound adjusted, atropin instilled and a double bandage applied. The piece of steel measured 2.5 millimeters by 1.5 millimeters by 0.75 millimeter.

Seven days after the operation the patient left the hospital, the wound had healed and the blood had disappeared from the anterior chamber. The vitreous was hazy and remnants of a clot were present in the inner third of the vitreous chamber. There had been no pain and no inflammatory reaction after the operation. Seven months after the accident the vision with correction equaled 20–30 +, the lens was perfectly transparent and the eye was used with its fellow without discomfort.

In this case, the piece of steel pierced the fibrous coat at the limbus, passed through the iris and suspensory ligament and lodged in the vitreous humor, not injuring the lens. The result proved the wisdom of the attempt to remove the foreign body through the original wound.

Case 2.—Henry W., aged 18 years, Feb. 27, 1896. Two hours before presenting himself at the New York Eye and Ear Infirmary, while at work punching bolt holes in steel plates, a small piece flew and struck him in the right eye. He was immediately admitted to the Infirmary on my service.

Status præsens.—A small penetrating wound about 3 mm. in length was observed in the limbus at the lower margin of the cornea. Slight hyphemia; anterior chamber one-half the normal depth; pupil drawn slightly downward. A small black spot was observed in the sinus of the anterior chamber below, which was supposed to be the foreign body.

Operation.—Cocain was instilled and the tip of the small electromagnet was applied to the lips of the wound without result. The wound was then slightly enlarged with scissors and the small magnet again applied without result. The

patient was then brought to the large magnet and the eye at the site of the wound made to approach the point of the magnet in a right line. Pain was experienced and the tissues at the site of the wound bulged markedly. The wound was again slightly enlarged and a second attempt made to extract with the large magnet. The foreign body did not escape but it became evident that the foreign body was immediately behind the iris, which was drawn forcibly against the wound. A small iridectomy downward was done and the eye again approached to the magnet. No result. The wound was then converted into a T-shaped one, the eye approached to the point of the magnet and when within 2 mm. of the point the foreign body flew from the eye and became attached to the point of the magnet. The columns of the coloboma and lips of the wound were carefully adjusted and a double bandage applied. The piece of steel was 4 mm. long and 1.5 mm. in diameter; it had undoubtedly passed through the cornea, iris, zonula at margin of lens and lodged in the vitreous chamber.

Five days later, eye quiet, numerous floating opacities in vitreous from previous hemorrhage, obscuring details of fundus. Lens clear. March 12, discharged. Eye quiet. V. = 2 200. May 1, 1897, lens partly opaque, anterior chamber shallow. V. = 1-8. Eye very slightly injected but painless.

Case 3.—Delare M., aged 41 years. Dec. 18, 1896. This morning while at work as a boiler riveter, he was struck in the eye by a piece of iron, presumably from a rivet. The patient was admitted to the New York Eye and Ear Infirmary on the service of Dr. H. D. Noyes, who kindly permitted me to conduct the case.

Status præsens.—Marginal wound of lower lid 6 mm. long, corresponding wound of cornea, linear and extending 6 mm. into clear cornea from the limbus upward and inward, 30 degrees from the vertical meridian. The wound also extends an equal distance downward and outward from the limbus, dividing the sclera and conjunctiva. Anterior chamber partly restored. Small quantity of blood on iris below. Iris apparently uninjured but adherent to posterior lips of corneal wound. Conjunctiva at site of wound swollen and ecchymosed. Fundus can not be seen. V. = 1-∞. Projection normal.

Operation.—Cocain anesthesia. The eye was approached to the point of the large magnet. Pain was complained of and there was a possible bulging of the tissues at the site of the wound. The wound was enlarged downward and a T-shaped incision made. Repeated attempts were made to remove the foreign body by bringing the point of the magnet into the wound. Pain was complained of, the eyeball was forcibly drawn onto the magnet and rotated slightly inward, but the foreign body was not removed. The patient was then etherized and the small magnet employed; the probe point being passed to the posterior part of the eye. Although at one point traction was experienced and it was thought that a metallic substance was felt, there was nothing more positive and no foreign body could be removed. As the patient had not consented to removal of the eye, the scleral wound was sutured and the eye bandaged. December 22, more or less pain has been experienced since the operation. Chemosis marked. The patient consented to enucleation, which was then done. On introducing the scissors to divide the nerve the foreign body was felt lying close to the sclera. Examination of the globe disclosed a linear wound situated a little to the temporal side of the optic nerve through which the chip of iron had almost entirely passed. Its force was spent just as it emerged from the sclera against which it lay, being displaced by the point of the enucleation scissors. The foreign body proved to be a piece of iron, irregularly circular, measuring 6.5 mm. in diameter by 1 mm. thick. Recovery was uneventful

The magnet has been used by some of the surgeons of the New York Eye and Ear Infirmary for diagnostic purposes and found to be of considerable value in determining the presence of a piece of steel in some part of the globe.

My experience in the use of the large magnet has forced me to recognize its superiority over the small magnet in all cases of recent injury where the wound is situated in the anterior segment of the globe where it can be approached by the tip of the magnet in a right line. With slight enlargement of the original wound, the foreign body, if it be steel or iron, can be made to retraverse the path made by it and the removal effected without introducing an instrument into the interior of the eye and without making a second opening into another part of the eye.

We all know how seldom an eye recovers with any degree of vision and how often it becomes necessary to remove an eye after a foreign body has been extracted by the usual opening through the sclerotic employing the small magnet. I think that the use of the large magnet will give us a large percentage of recoveries. In cases where the foreign body has passed into the vitreous and remained for more than a week, I doubt the value of the large magnet, but in cases where the lens is the resting place of the foreign body as in Haab's first case, it will be of value. For diagnostic purposes it will aid materially.

DISCUSSION.

Dr. HAROLD GIFFORD of Omaha—Some years ago I had one of these Haab's magnets made. I am afraid that members of the profession have been frightened away by the idea that they were very expensive. I do not know whether I have a liberal electrician or not, but I had the magnet made for about $72. The only difficulty I find is that it is hard to keep at hand a source of electricity that will run it. I at first had large storage batteries made, but when I wanted to use them they had usually run out. The ordinary alternating current will not suffice and it is hard to get connection with the street current. This magnet is certainly a great instrument and these cases of Dr. Weeks illustrate its value, though I should not be inclined to limit the use of the magnet to recent cases nor to cases in which the foreign body is in the anterior portion of the eye, it is certainly worth while trying for deeper objects. I never yet have brought out a foreign body with the Haab magnet I am sorry to say, but it has given me useful indications as to what I should do. In one case I was not sure whether the foreign body was in the vitreous, in the sclera, or had passed through the eye. The Haab magnet showed me that it was just behind the iris. I went into the wound then with the small magnet and although I never knew whether I got it out or not, the man's symptoms immediately ceased. In another case where the lens matter was cataractous immediately after the accident, I used the large magnet, and as the man had no pain, I judged that the substance must either be fixed in the sclera or had gone through. I waited, the lens cleared up; it had been so opaque at first that I could scarcely see any of the fundus; and at the end of a few days I could see perfectly well and found the foreign body embedded in the sclera.

Dr. H. KNAPP of New York—I think it is of very great use especially if it is not necessary to go into the vitreous. To go into the vitreous, even if you get the body out successfully, and find that the eye is good for three or four months, it will not be good after three or four years; so if you can get it out without going into the vitreous this instrument is of immense value.

Dr. J. A. LIPPINCOTT of Pittsburg—The disadvantage of the Haab magnet is its non-portability. If a magnet can be constructed that is portable, it can be used where this is not serviceable. Some few years ago I had such a one constructed: it would hold up about fourteen or fifteen pounds from its point, which is considerable force. With that I have removed five foreign bodies from various portions of the eye, by using a current from the street, or rather, by continuous current from a private establishment. These large magnets are also of great value in a diagnostic way, for they not only demonstrate the foreign body in the eye by means of the pain elicited, but you can demonstrate the approximate position of the body. In all the cases in which I have operated I was able to tell about the place occupied by the foreign body by eliciting pain and traversing that area in gradually diminishing circles, with a small needle attached to the magnet.

Dr. S. C. AYRES of Cincinnati—I have never used the Haab magnet but have had a large experience with others. The first time I used it I was very successful and the patient was saved very fair vision. In another case where the foreign body, a crescent shaped piece of steel, had penetrated the cornea, I passed the magnet in and could feel that it came in contact with a foreign body, but the sensation was so slight that I was somewhat uncertain. I found later, after enucleation, that the foreign body had penetrated the sclera and my magnet had come in contact with the end which was protruding in the vitreous. In another case I found the foreign body encysted and in another discovered it later in the orbit.

Dr. E. E. HOLT of Portland, Me.—Having had quite an experience with the use of electromagnets, I have felt quite interested in this subject. I have found that in those cases in which I could make out the exact location of the body it was

quite as difficult to get the body out, or more so than if I could only estimate where it was. I think in 75 per cent. of my cases I was unable to see the body, but only estimated its position and in most of those cases I succeeded in getting the foreign body by the magnet.

Dr. J. E. WEEKS of New York—I wish to correct the impression that Dr. Gifford obtained, that I limited the use of the magnet to detecting pieces of steel in the anterior portion of the globe. Experiments made by Haab show that pieces of steel that are encysted will not be affected in the majority of cases except that the contact causes some pain to the patient and as a diagnostic means the magnet serves a good purpose.

The magnet is not portable and consequently is limited somewhat in its usefulness. A case I had a few days ago illustrates this very well. It was necessary to open the sclerotic near the equator of the globe and it was impossible to move the patient to the Haab magnet after this opening was made, because of the fear of producing prolapse of the vitreous humor. In that case the small magnet was used with success.

SHOT-GRAIN WOUNDS OF THE EYE.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY LEWIS H. TAYLOR, M.D.

WILKES-BARRE, PA.

It has been my fortune or misfortune to have under my care from time to time, a large number of patients suffering with wounds of the eyeball. Some of these have proven especially interesting to me owing to the serious nature of the injuries and the final results attained by conservative treatment. From among them I desire to present to the Section the histories of a few cases of shot-grain wounds, which I will relate briefly and follow with such remarks on wounds of this character as this brief paper will allow.

Case 1.—E. G., aged 37 years, came in the evening of Nov. 22, 1892, his right eye having been struck about 3 o'clock in the afternoon, by a shot grain from a companion's gun. From his position at the time of the accident the shot had evidently first struck a stone wall and then glanced to the patient's eye. It had passed through the lower lid and entered the globe just inside of the sclerocorneal junction, the iris being partly caught in the wound. The shot could not be seen so I instilled atropia and decided to wait till morning.

On the morning of November 23, the iris being dilated the shot grain could be seen imbedded in the lens and I decided to attempt its removal.

After making a downward section and iridectomy, with combined external and internal manipulation with loop and spatula, I succeeded in dislodging the grain and then removed it with forceps. The eye was bandaged and treated with atropia and boracic acid daily. The reaction was considerable, but this quieted down finally and the lens absorbed leaving a fairly good eye in appearance but with a dense capsule remaining and no useful vision.

In July following (1893) I lacerated this membrane with discission knife, leaving a clear central pupil with vision, in 1895, of 20-c.

Case 2.—G. C., aged 27 years, was out hunting on Nov. 2, 1894, and a stray shot from his companion's gun struck his left eye penetrating the upper lid and entering the eyeball a quarter of an inch above the corneal scleral junction. He entered the Wilkes-Barre Hospital on November 3, and I treated him there until November 24. When I first saw him the anterior chamber was full of blood, iris invisible, and vision entirely gone. The patient was placed in bed, atropia instilled and leeches applied to the temple from time to time. He came to my office November 28, with iris entirely clear, pupil dilated V. 20-cc and fundus partly seen with the ophthalmoscope.

Dec. 24, 1894. Eye now free from irritation and looking well. Pupil still dilated. Ophthalmoscope shows a dark object in the anterior part of the vitreous resting on the floor of the eye, probably the shot grain encapsulated. V. 20-c. The nerve can be partly seen with the ophalmoscope. Some shreds remain in the anterior part of the eye. Now use acid boric, with weak eserin solution.

Feb. 27, 1895. V. in O. S. 20-lxx, some in 20-l. Nerve and vessels quite distinct. Shot still remains in the anterior part of the vitreous back of the lens. With + 1, V. = 20-xl.

March 30, 1895. V. = 20-xl with + .50, 20-xxx. Doing well, no pain or inconvenience. There is a slight depression in sclera at the point where the shot entered. In this case, with treatment wholly conservative, the patient recovered with useful vision and saved his eye, which at first appearance decidedly indicated enucleation.

Case 3.—J. T., aged 27 years, came Oct. 26, 1896. He was out gunning the previous afternoon and was shot in the left eye. One grain entered the eyeball a little above and back of the insertion of the internal rectus, but it could not be determined whether this lodged in the eyeball or passed entirely through it. Another shot penetrated the upper lid near the central margin, about three-eighths of an inch above, passed entirely through the lid and probably into the eye though the corneal wound could not be seen. Another passed through the right ear and another under the skin of the right temple for a half an inch.

The lids and conjunctiva were much swollen and blackened with extravasated blood. He was seen on the evening of October 25, the day of the accident, by Dr. Buckman, who instilled atropia and ordered iced compresses to be used through the night. There was now no pain, the pupil dilated, the conjunctiva much swollen but the eye quite comfortable. A clear view of the fundus could not be obtained. There was much cloudiness and evidently blood in the vitreous chamber. He could see a waving hand but could not count fingers at any distance. Here was a serious wound and one in which, owing to danger of subsequent sympathetic ophthalmia, enucleation would probably have been justified. In view of the good result in the previous cases I decided to delay operation and endeavor to save the eyeball even though a sightless one. No effort was made to find the shot. Iced compresses were continued and atropia instilled every three hours.

On October 28, the eye being entirely comfortable and swelling subsiding, the iced compresses were discontinued. Pupil was now dilated but not quite regularly so.

October 31, he reported that in the morning when he first comes to the light the right eye is sensitive, but it soon becomes accustomed to the light and is all right. Patient is not confined to the house but comes to the office daily and his eye is kept bandaged.

November 3. Clearing nicely. Sclera showing. A little blood in anterior chamber.

November 5. Now worse; he went, on the evening of November 3, to be initiated into a lodge and for the first time encountered a bright light. Both eyes congested. Atropia now used in both and iced compresses applied. This irritation soon subsided and the eye again did well, but on November 16, knowing the possibility of future complications, I advised a consultation and he went to New York, saw Dr. Knapp and remained two weeks under his care. Dr. Knapp agreed as to the possibility of saving his eye and advised delay as to operation, and keeping careful watch as to signs of sympathetic irritation, etc.

I kept him quiet for some weeks, using atropia occasionally. Early in January he went back to his work as mining engineer and reported in the latter part of January, 1897, that he was able to continue his work with the right eye all day without fatigue or inconvenience. There is still no vision in the injured eye, as he merely sees a waving hand. He is entirely comfortable and greatly pleased that the eye was not enucleated, though he was perfectly willing to have it done in the first place had I so advised, rather than run any risk whatever of injury to the other eye.

I saw him recently, May 23, 1897, and the eye was then doing well, V. 20-cc. He can read J. xvi, and the eye seems to be gaining daily. He first noticed that he could see some time last February when out surveying while there was snow on the ground. He is annoyed a little with diplopia, but this is lessening as time goes by.

While thinking of preparing a paper on this subject I have been interested in looking up the literature of similar cases. While not extensive it is certainly suggestive and well worthy the consideration of those who are so ready to enucleate every eye that sustains a serious injury.

Valois (quoted in *Annals of Ophthalmology*, January 1897, p. 193) asserts that, in his experience, shot are among the most frequent of the foreign bodies that by accident penetrate the eyeball; they may enter the globe directly from the gun, or indirectly, after having passed through, or glanced from some other foreign body. "Wounds received from direct

shot are less apt to give trouble than those received indirectly, because, in the latter instance, they may be infected from contact with the reflected body, or the shot may be flattened and so inflict an irregular wound, a condition of things that materially increases the chances for infection after the accident. It is not believed that shot produces the slightest inflammatory action by virtue of any chemic properties of lead; although the vitreous promptly resents the presence of all foreign bodies, it is to be remembered that a shot is tolerated much better than any other extraneous substance."

A very interesting case of gunshot wound of both eyes, studied nine years after the accident, is reported by Dr. Robt. R. Saunders in *Annals of Ophthalmology*, July 1895. In this case one eye recovered full vision while the sight of the other was entirely lost.

Dr. Badal (*Annals d'Oculistique*, January 1895) reports a case in which an eye enucleated on account of shot-grain wound showed upon examination that the shot had crossed the eye and passed out through the sclera of the opposite side and lodged in the orbit. This is the second time he had found a similar condition. He pertinently adds: "I am led to think that hereafter it will be best to wait and not enucleate an eye wounded under similar conditions, as the shot which is lodged in the orbit is in general very well borne and the eye preserves its form and gives no occasion for surgical interference." Dr. Lagrange in discussing the above says: "I have seen a patient with the same conditions as those described. A shot had penetrated the eye and I proposed enucleation, which was refused. Some time after I saw the patient again with the eye in very good condition. In the future I shall be more reserved and wait until enucleation is necessary." Dr. Simon Snell ("Transactions of the Oph. Soc. of the United Kingdom," 1893), reports a case in which a pellet of shot was driven through the eyeball, with retention of perfect sight. "The patient was seen the same day and the question of enucleation delayed to obtain consent of the lad's father. Atropin and iced pads were used. On the following day the eye was doing so well that the question of enucleation was delayed from day to day. The vitreous gradually became clear and it became evident that no foreign body was situated in the interior of the eyeball. It was moreover rendered probable that the pellet which had entered the eyeball through the sclerotic on the inner side had passed out again close to the optic disc on its inner side. Vision further improved within a few days after the accident, and gradually returned to practically normal sight. Nine months after the accident he reads J. 1 readily and V. = 6–6."

T. R. Meux ("Transactions of Tennessee State Medical Society," Nashville, 1896) reports his own case in which the shot entered the eye causing considerable reaction. Several surgeons advised enucleation, but the eye subsequently recovered so that eight and one-half years after, no difference could be distinguished between the two.

Playne ("Oph. Hospital Reports," London, 1858) reports a case in which shot entered the eye causing strabismus and ptosis with subsequent entire recovery.

Dr. Casey A. Wood (*Amer. Jour. Oph.*, 1890) speaking of the comparative danger from shot and other wounds of the eye, such as knife blade, glass, etc., says: "Less likely also is the shot to disturb the ocular membranes, to make a ragged wound, or to remain in the cavity of the globe. It goes through and makes a 'clean' passage. In scleral ruptures and in penetrating wounds made by other agents, the probability of other accidents is also greater than when small shot enters the eye. Among these are dislocation of the lens, retinal detachments, loss of vitreous and extensive intra-ocular hemorrhages. In a word, so far as the eye is concerned, the effects of wounds made by small pistol bullets and the various kinds of bird or buckshot are confined to the tissues through which they immediately pass, while the lesions resulting from scleral ruptures and penetrating wounds of other kinds are far more reaching and destructive in character."

It has seemed to me that shot-grain wounds are really less dangerous than we would naturally expect them to be from the nature and severity of the injuries received, and that in some way these grains are more nearly aseptic than foreign bodies in general. I thought this might be due to the heat generated by the powder explosion, but on examination of an ordinary bird-shot shell I find, covering the powder, a series of wads at least three-fourths of an inch in thickness, so that it is not probable that any of the flame from the powder explosion comes in contact with the shot. The heat developed by the velocity of the shot in passing through the air is thought by many to render the grain aseptic, but Dr. Suter of Herkimer, N. Y., claims to have proven by experiment that the heat developed by bullets during the passage through the air is not sufficient to render them aseptic as is generally stated. He found at least that the bacillus of anthrax would survive the ordeal and infers that it is not safe to consider bullets sterile of the germs.

Tornatola reported (*Arch. für Augenh.*, 491) in twenty-one cases of shot-grain wounds of the eye that he had noticed sympathetic affection necessitating enucleation in only a single case. He attributes this favorable result to the antiseptic treatment of the wound. Shot-grains discharged from a gun were always found aseptic, while those taken in the condition as received from the store and placed in gelatin or bouillon always developed numerous colonies from which he could often isolate the staphylococcus pyogenes albus. In experimental shot-grain wounds in the eyes of rabbits in eight cases out of ten he retained the form and tension of the bulb, provided the eye was disinfected previous to the wounding and treated antiseptically immediately after. On the other hand, in twenty cases wounded in a similar manner, in which there was no attempt at disinfection and no treatment following the wound, there followed fourteen cases of phthisis bulbi, five of panophthalmitis and only a single case which retained its ordinary appearance."

I think we may safely conclude:

1. That shot grain wounds of the eye are less dangerous than wounds of similar severity from many other causes.

2. That in general an eye wounded by shot grains, unless the wound be one of unusual severity, should not be immediately enucleated, but should be treated conservatively under careful observation.

3. A patient with a wound of this character should rest in bed for a period of two weeks or more, and the wound be treated under most rigid antiseptic precautions.

Additional interesting cases bearing on this subject may be found as follows:

John Butler: London Med. Gaz., xiii, 1888.
Arthur Benson: British Medical Journal, 1882, ii, 1085.
J. W. Southworth: Buffalo Medical and Surgical Journal, 1872-3, xii, 9-10.
Wm. Caston: Texas Medical Journal, 1887-8, iii, 311-314.
A. Poland: Oph. Hosp. Reports, London, 1858, i, 214.
White Cooper: London Jour. Med., 1851, iii, 969-976.
E. Willmer Phillips: Lancet, London, 1888, i, 1071.

DISCUSSION.

Dr. C. W. Kollock of Charleston, S. C.—I believe there are many eyes wounded by shot grain in which it is useless to enucleate because the shot has passed through the eye. In one case I saw, the shot passed directly through the ciliary body and then out into the orbit. I had the pleasure of examining this eye four or five years afterward and there was no trouble with the eye.

Another point in these cases is that those cases in which the shot passes through the cornea without wounding the lids, if they remain in the eye there is not apt to be any ecchymosis of the lids. If the shot has passed through into the orbit there will be. That I believe to be a diagnostic point.

Dr. C. A. Wood of Chicago—Some years ago I reported a series of these cases in the *American Journal of Ophthalmology* and I came to nearly the same conclusions as Dr. Taylor has. I then advanced the idea that shot grains were probably aseptic at the time of penetrating the eyeball. It seemed to me the friction of the shot grains in passing through the air rendered them sufficiently aseptic to account for the condition that occurs after the trauma. I think that has much to do with the favorable results obtained after injuries of this sort.

Dr. Robert L. Randolph of Baltimore—I think that Dr. Wood has suggested the probable explanation of this matter. Some few years ago Dr. La Garde of the U. S. Army made some experiments with regard to the infectiousness of gunshot wounds. He stood at varying distances from culture media and fired into the media with pistol and rifle. In the majority of cases he obtained negative results, that is to say the test showed that the bullet was aseptic. The aseptic condition of the bullet then would explain the comparative freedom from disastrous results after gunshot wounds.

Dr. Harold Gifford of Omaha—I would remind Dr. Randolph that the experiments referred to also gave a number of positive results and that the conditions surrounding the ordinary bird shot are not so favorable as those surrounding the bullet. You have not the chance of the flame and heat of explosion coming into contact with the shot as with the bullet in the smooth-bore rifle. The chemic properties are probably more important than the aseptic properties.

Dr. L. H. Taylor of Wilkes-Barre—I thought they were rendered aseptic by contact with the flame, but on examining the shells, I found them covered by a dense covering three fourths of an inch in thickness, so I conclude that the flame has little to do with it, but friction in passing through the air may have much to do with it.

IN WHAT CASES AND WHEN TO ENUCLEATE IN INJURIES OF THE EYE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN M. FOSTER, M.D.

DENVER, COLO.

There is probably no class of cases that fall to our care that give us the same amount of anxiety and solicitude as to the probable and possible outcome, as that which occurs in the injuries, especially in the penetrating wounds, of the eye. The experience of years and a large number of cases does not enable us to say with any degree of precision, this case will have sympathetic ophthalmia, or panophthalmitis, or that that case will not. We know that in a certain class of accidents, especially in those where there has been deep, penetrating wounds, more particularly in the ciliary region, serious results are liable to follow, and they often do. But, on the other hand, how frequently we note the termination of these unfavorably appearing cases in kindly healing, without the slightest untoward symptom; no irritation of the fellow eye, and even a better result in the injured one than we had any expectation of seeing.

It is precisely this uncertainty, and the dreadful consequences that are liable to follow these injuries, that lends this subject an intense and continuous interest, giving it a respectful hearing at all times. If we could feel sure that any age, sex or condition gave an injured eye exemption from the liability of affecting its mate, we could have the comfort of feeling secure in at least a small percentage of our cases, but unfortunately we know of no such exemption. Our clinical experience has not given us such assurance, but, on the contrary, has shown beyond doubt that age, at least, has a bearing and not a favorable one; for we have ascertained that children under the age of puberty are more prone to sympathetic ophthalmia after injuries, than at any other period of life. We have not been able to go further, however, and determine any time at which there is any degree of immunity. The question is not the amount of safety age affords, but one that asks us at what age we feel the most anxiety.

Naturally, the first point of interest in any accident to the eye would be the character, and, secondly, the location of the injury or wound, affecting as they do our prognosis and treatment to such an extent, as is hardly the case in any other part of the body. Slight superficial injuries, such as are produced by blows with the fist or a dull instrument, causing contusions and bruisings of the coverings and appendages of the eye without solution of continuity of the ball itself, while they frequently are productive of serious or fatal results to vision, are in the rarest of instances followed by sympathetic affection of the uninjured member. Indeed, so seldom do we find even a sympathetic irritation from this class of injuries that we content ourselves by bearing in mind the possibility of a complication, and concentrate our attention upon the alleviation and betterment of the injured eye. Under these circumstances, that is, with no pain, irritation or photophobia, we would hardly give the subject of enucleation serious consideration, bearing in mind also the large number of even severe injuries of the eye that are not followed by sympathetic ophthalmia; only two occurred in something like six hundred cases, thus allowing us to discard a large percentage of cases from the subject in hand.

It is a far different matter, however, when we deal with a penetrating or poisoned wound, even if the instrument or particle producing it is *not* left in the globe. Its presence, nevertheless, adds that much more to the gravity of the case; while a demonstration of its absence, which is not always an easy matter, does not give a sense of relief or a feeling of security. In any event, we have a serious condition before us, which is influenced by several factors, viz., depth, position and character of the wound, as well as the presence or absence of a foreign body. All serious questions, demanding serious consideration.

Our prognosis and method of procedure will be modified or entirely changed oftentimes by the position of the wound almost alone; that is to say, when we find a gaping, lacerated wound in the region of the ciliary process, we consider the case very much more serious and more likely to demand stringent proceedings than if it is in the conjunctiva somewhat remote from this situation. We can, I feel, be governed by the following: All things considered, a wound in the ciliary region more often demands enucleation than in any other locality, and that we should not hesitate in these special cases to do the operation if there is

excessive pain, indication of purulent inflammation in the affected eye, or if there is irritation, shyness of light, corneal haziness or discoloration of the iris, however slight, in the uninjured eye. The question of a foreign body in an eye renders the probability of an enucleation more probable, but is not *per se* an indication for the operation.

The question of a poisoned wound one with undoubted contamination with bacteria of any description, demands, as a rule, enucleation. I do not suggest this with the belief in my mind of the migratory theory of sympathetic ophthalmia; on the contrary, I am convinced that the only way for trouble to be started in the second eye is by means of the intimate relations between the lymph channels and spaces, the irides, etc., as shown by the majority of cases exhibiting a serous uveitis, punctate keratitis, which confirms me in the belief that a sympathetic ophthalmitis does not arise from a migration of bacteria through the optic nerve. In sympathetic ophthalmia, staphylococci and streptococci are occasionally found in both eyes, but are not the specific cause of the disease, as shown by our inability to reproduce it by inoculation. It is caused more probably by the irritation of the ciliary nerves producing a reflected disturbance of the blood and nutrition of the uninjured eye.

In panophthalmitis, microbes are plentiful, as one would naturally suppose. Streptococci, staphylococci, and varieties of micrococci, with marked infiltrations of the ciliary body and edema of the papilla.

However, it is not the purpose of this paper to discuss the merits of the different theories of the origin of the trouble; my own belief in the matter is expressed to explain in a measure my position as to the best methods of dealing with or against the disease, finding, as I have done, that section of the nerve does not replace enucleation as a preventive measure against sympathetic ophthalmia.

We must bear in mind that this disease is a rare one, and as our operations are mostly done as a prophylactic measure against its onset, or done in cases that have been blind for months or years, it renders our statistics inexact, especially as a sympathetic ophthalmia occasionally sets up after an enucleation has already been done. In this connection I will say that experience has proven that in these cases the inflammation is less virulent than that which occurs when the operation has been too long delayed.

In what cases to enucleate.—Give the operation serious thought in penetrating wounds of the ciliary region, but do not do an operation for every ciliary wound. Enucleate regardless of the situation of the wound in cases where there is marked inflammation of the injured eye and photophobia in the other; also when panophthalmitis is threatened.

The time to enucleate is as soon as possible after deciding it is necessary.

It is seldom that a prophylactic enucleation is followed by a sympathetic ophthalmitis; on the other hand, cures are at times established in cases where the symptoms have been well marked for several weeks. As a rule, however, in case the trouble has commenced, the primarily affected eye should only be removed after the inflammation has been so severe and lasted so long that there can be no hope of restoring vision. If sympathetic ophthalmitis affects the sound eye shortly after an enucleation of the injured, we feel certain that ill-defined and veiled symptoms have been overlooked and it had already begun to suffer before the operation was performed.

Where the inflammation follows after long delay, how can we account for it? As an example note an atrophic globe following an old injury, absolutely quiescent for years, when suddenly an inflammatory action commences, and the fellow eye is lost with sympathetic trouble.

In panophthalmitis an early enucleation should be done for fear of meningitis following. This dreadful sequel has commenced as late as the twentieth day, but generally begins much earlier. We all know and recognize the deformity resulting from the lack of development of the orbit in a child, following enucleation, but this should not deter us from the operation in all suitable cases, for we must feel some pangs of conscience if sympathetic ophthalmitis occurs in a case that we have not operated on for cosmetic reasons. I am strongly inclined to lean toward the operative side when my first examination, shortly after the accident, leads me to feel positive that no sight will be regained in the eye.

WHEN EVISCERATION IS PREFERABLE TO ENUCLEATION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. C. DUNLAVY, M.D.

SIOUX CITY, IOWA.

The services of an eye surgeon are so often demanded in cases of either recent or remote traumatism of the eyeball, as well as for many conditions resulting from disease of this organ, that some general rules of surgical procedure should be adopted for the guidance of those whose advantages for rational information have been necessarily more or less curtailed, and who for lack of proper knowledge are more liable to treat a patient in the generally recognized plan of the surgeons of his community, whether or not this plan is practiced or sanctioned by the better and more enlightened surgeons as being the more rational.

In general surgery we have amputating surgeons, and in eye surgery we have enucleating surgeons, both of whom are perfectly proper and indispensable, but, alas, either are liable to travel at too rapid a pace and leave death and maimed bodies with their baneful results to follow their respective practices along the generations to come.

The surgical procedure of enucleating, or the evisceration of an eyeball, is done for several purposes of more or less seriousness or importance, for a certain class of patients. One class of persons who can not afford to lose extra time from business or labor will often consent to the sacrifice of an eye, when the ball could have been saved entire by proper patience and careful treatment. Others who bear pain poorly will yield rather than undergo the suffering of a panophthalmitis; and finally, the skilful surgeon must demand the surgical means for purely scientific reasons to lessen the danger of the fellow eye. Until comparatively recently it has been almost a wholesale custom of surgeons, more especially those of less scientific attainments, to do the easier, quicker and more brilliant operation of enucleation in all cases calling for such interference, but a few well authenticated cases of death from meningitis following enucle-

ation during a high stage of inflammation, has aided very materially in calling a halt in this wholesale procedure, and adopting the more conservative and scientific operation of evisceration instead. The rule should be, if any can be established, in an injury to the eyeball, to eviscerate if the injury is of recent occurrence, say within a few days. The theory of this rule is based particularly on the supposition that the migration of septic germs has not yet begun. Whatever the theories of extension of inflammation to the meninges or causes of sympathetic ophthalmitis to the fellow eye, the more rational course to pursue is, for the surgeon to determine from all the conditions of the case, what appears best suited in each individual case. If his judgment be poor, the patient suffers.

It is perfectly rational in this condition, as in all others, to sacrifice as little as possible concurrent with the pathologic state of the eye. I believe no eye surgeon of respectability at the present time would think of enucleating when the globe is filled with pus, for the reason that channels already closed in the optic nerve against migrating septic bodies might, by severing the optic nerve, be opened up and admit the very sources of infection against which nature had fully guarded. And in cases where a foreign body has penetrated the eyeball and resulted in panophthalmitis, and where the foreign body can not be found by evisceration, it is better to enucleate and take the chances of meningitis, but as a rule, avoid everything possible of a traumatic character in either procedure.

In such cases, whatever may have been the cause, the rational procedure is to excise the anterior portion of the globe. The incision should be made far enough back that the iris and ciliary body should be included in that portion of the globe excised; then with a pledget of absorbent cotton dipped into a solution of sublimate, 1 to 2,000, or formol, 1 to 1,000, thoroughly wipe out all contents of the globe, leaving nothing except a clean and thoroughly washed sclera. This takes time and pains, but it is so rational that it well pays for the trouble. After the globe is thus thoroughly eviscerated and cleaned, a single stitch of No. 3 thread through the conjunctiva, not the sclera, drawn so as to merely shape the outer extremity of the sclera and not close the door completely, and an antiseptic pad of cotton or gauze applied under a light roller completes the operation; after-treatment on the usual plans; this for an eye filled with pus.

In a more recent inflammation, where the eyeball and orbital tissues are very much swollen and a destructive inflammation from some dirty or septic substance having penetrated the interior of the globe, the danger of meningitis is, to my mind, very great, and augmented by any procedure which will in any way tend to irritate the distal extremity of the optic nerve. An eye in this condition should never be enucleated. Eviscerate in practically the same manner as above described, except that the contents of the globe, which are not now purulent, can not be so easily and thoroughly removed by wiping and will need to be removed by the use of some small instrument, such as a scoop, spoon or spatula, introduced between the sclera and what is left of the uveal tract, and the contents in this manner carefully removed. The after-treatment as well as the operation is to be done under strict germicidal rules.

These two pathologic conditions will serve to illustrate the forms of panophthalmitis where evisceration and not enucleation should be done. In cases where the injury has been of such a nature as to leave cicatrices, which prevent the proper application of an artificial eye or to make the sunken globe appear more unsightly, or a constant dragging or pulling on the orbital tissues, which of itself may excite sympathetic ophthalmia, and from the nature of the injury these conditions are to be expected, the eye should be enucleated. In case of old inflammation, of whatever character, where the ball is tender, sore or subject to subacute attacks, if any part is left remaining the fellow eye is in constant danger and should be protected by the enucleation of the offending eye. In all cases where a foreign body is known to be lodged in the eye and there is greater or less inflammation, if the foreign body is not found by the process of incision or excision of the ball at some point, enucleation should be done.

At least two conditions exist where an eye should not be enucleated: When the globe is filled with pus and during a high state of acute inflammation.

604 Fourth Street.

DISCUSSION.

Dr. H. V. WÜRDEMANN of Milwaukee—I rise for the purpose of advocating in the majority of cases a properly applied enucleation. If the operation is completed by sewing up the conjunctiva in the form of a pouch we can get immediate healing and a stump that is partly movable, and if you wish to make the operation a little better you can pick up the recti muscles and bring them out of the wound. The patient can be fitted with an artificial eye within four days to a week afterward. Whoever has had a run of enucleation cases and gone to evisceration and had one case or more of sympathetic irritation will be apt to return to enucleation; whoever has done a number of successful eviscerations and has had one case of meningitis following his enucleation is apt to become a more earnest advocate of evisceration. Eight years ago I brought over a number of glass balls and I may have been unfortunate in having made a failure of the first two cases I operated on. In one I had sympathetic irritation, and since then I have been afraid to return to evisceration. This is despite the paper of Dr. Dunlavy and those of Dr. Fox. I have with me some specimens which I think show the advisability of enucleation [passing specimens]. One of the cases was an enucleation during severe panophthalmitis and the eyeball had to be removed to obtain drainage; simple incision did not give relief to the pus in the orbit.

Dr. J. C. DUNLAVY—The cosmetic effect has been fully discussed and we will not take it into consideration. Purulent orbital cellulitis should not be considered with this surgical procedure at all, for evisceration could not be expected to evacuate pus in the orbit. Neither enucleation nor evisceration should be adopted by any person as the sole plan of procedure, because there are cases where every man ought to know that one is better than the other. The effort to save as much of the body as possible in the one instance and to lessen the danger of meningitis in the other are the two points I wished to bring out. About two years ago, during a session of the local society, a patient came in with a piece of metal in the eye. I removed it with the magnet and he had no trouble whatever. Some time afterward the patient hurt that same eye and I performed an evisceration, and on wiping out the cavity something caught on the cotton and I found it to be a splinter of metal. I mention it merely because it would be so unlooked for.

The Toxic Principle of Mushrooms.—The active principle of the *agaricus muscarius*, or fly mushroom, acts by paralysis of the nerve centers, causing death from the heart. There is no doubt that it is one of the most powerful of vegetable poisons. The antidote is the sulphate of atropin, hypodermatically administered at the earliest opportunity. This muscarin in the form of the nitrate or sulphate appears in the laboratory as a brown deliquescent mass, and has a recommendation as an antihydrotic with some virtue as a cure for diabetes insipidus. The eye symptoms in mushroom poisonings appear to be unrecorded.

THE MANAGEMENT OF CHILDREN WITH AN INHERITED TUBERCULAR DIATHESIS.

Presented to the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY JOSEPH WILLIAM STICKLER, M.D.
ORANGE, N. J.

There are diverse views concerning the so-called inherited tubercular diathesis; some even deny the existence of such a thing; others fully believe in it. Vogel is one of the latter. He regards heredity as an important etiologic factor in the production of infantile tuberculosis, because children born of parents affected with this disease develop it when exposed to bad hygienic surroundings. Baumgarten thinks there is a virus transmitted from parent to offspring. Bend is arrayed against him. Edward Squire of London from a study of 1,000 cases concludes that heredity accounts for 9 per cent. of cases among children born of phthisic parents, in excess of cases among children of non-phthisic parents. He therefore believes that heredity in these cases means simply a tendency to suffer from diseases, tuberculosis among others, which all children born of weakly parents have in common. Dr. Solomon Solis-Cohen says, "to make our conception of the disease sufficiently comprehensive, we must include other elements than the bacillus and the changes in cellular structure, or in chemic constitution of solids and fluids brought about by its activity. There is in the constitution of the individual, anterior to bacillary infection, something that determines the fact of infection and that largely determines, also, the course and character of the results of infection. We must not remain satisfied to cover our ignorance by naming this determining element 'susceptibility,' or negatively, 'lack of resisting power' to the bacillus; nor is it any advance to speak vaguely, whether figuratively or literally, of 'favorable soil' and 'good culture medium.' That condition which makes the human tissues a receptive 'soil,' a favorable 'culture medium' for the tubercle bacillus, that condition which of old was called 'diathesis' and now 'susceptibility' is itself a disease, a departure from the norm; and I believe it to be the most important element in the morbid complexus termed tuberculosis. It is the element requiring the greatest care in prophylaxis, the most intelligent and faithful treatment." J. Lewis Smith says that the tubercular diathesis may be inherited. "Hence, the well-known fact of tubercular families." If both parents are tubercular, the offspring almost necessarily becomes so. Without further consideration of this portion of the subject I shall assume that children born of tubercular parents are *apt* to develop tuberculosis. I shall also assume that with proper care and management, the inherited diathesis may remain latent or be entirely overcome.

To this end I shall call your attention to a few measures which, to me, seem to be of importance. The first thing to be done for an infant whose mother is tubercular, is to secure a healthy wet nurse. In most instances when this is done, the little one will gain new strength very speedily. A French mother would, in France, have her child suckle a goat if a good wet nurse could not be found. Weaning should be gradual, and not accomplished during the warm months. As long as the child does well at the breast it is unwise to interfere. Should artificial food become a necessity, very great care should be observed in its selection and preparation, and in the care of nipples, spoons, forks, bottles, glasses, etc. Sometimes inunctions of cod-liver oil, cocoanut oil or some other suitable oil will be found useful. It is unquestionably true that a few drops of brandy or wine before nursing will help the nutritive processes. Cod-liver oil, plain or in the form of emulsion may be given with excellent results in many cases, as may the dry preparations of malt, beef juice, malted milk or peptenized beef tea. Just here it should be remembered that the alimentary canal is a channel through which tubercle bacilli may find their way into the infant's system. Food containing the bacilli will do no harm in a healthy stomach and intestines, but in the event of sickness, altered mucous membrane, or absence of acid, the infected food may do great harm; hence, care in this direction. If cow's milk be used, it should be thoroughly sterilized. Dr. J. Lewis Smith directs that it should be placed in a steamer and subjected for two hours, to a temperature of 190 to 200 F. The child should be warmly but lightly clothed. The chest and waist should not be restricted and the limbs ought to have free play. If there be a catarrhal inflammation of the nostrils or throat, a cap of suitable material may be worn. It is quite important that the bowels should receive their share of attention. If the evacuations do not occur as frequently as they ought to; or are inordinately hard and expelled with difficulty, a mild laxative, enema or suppository is indicated. Gastro-intestinal catarrh would suggest mercury with chalk; calomel; aromatic syrup of rhubarb; castor oil; bismuth and other appropriate remedies. Should the child become greatly prostrated and be in an inland town or city, and the weather hot I know of nothing that will revive and restore to health as quickly and surely as a stay of a few days or weeks at the seaside.

When indoors, in cold or chilly weather, the child should have properly heated, but well-ventilated apartments. Draughts should be avoided and the temperature of the room never allowed to get so low as to chill the body. On the other hand be careful lest the temperature reach too high a point. From 65 to 75 F. is a good temperature. If the child should develop bronchitis or any other inflammatory affection of the air-tubes or pulmonary tissues the air should be kept moist. During the night, avoid sudden changes of temperature occasioned by faulty management of the heating apparatus of the room or house and protect the child against sudden changes of temperature due to change of weather.

The tubercular mother should not sleep in the same room with her child. In the homes of the very poor, the separation of the mother and infant at night is sometimes a difficult matter to manage, as in some instances there is but one room for the two. In such a case insist on the use of the cradle, placed as far from the mother as will be consistent with the care and protection of the child. Water warm enough to be comfortable, should be used for bathing the little one during the cold months; while cold water may be advantageously employed in warm weather. The bath should be given daily, but not prolonged, and followed with a brisk rubbing. These children should be shielded from contagious diseases, but in the event of their contracting them, the most judicious efforts should be made to support the system till the return

to health. If the child has left its mother's breast, it should have highly nutritious and easily digested food, the character and quantity of which will be determined by the age and condition of the child.

"Avoid the depressing refinements and undue attention sometimes witnessed in city homes." Continuous city life is bad at best for these little ones. "All recognize the bright, neat little town child, quite a little fairy as it flits about, presenting a strong contrast to the typical solid country child; but the latter is full of health and strength, while the town child is delicate and fragile. Medically, these graceful and fascinating little personages are unsatisfactory. They are not all strumous, but they lean that way. They usually receive cruel treatment from those who least intend it. Bright, quick-witted and affectionate, these mites are constantly amused and entertained when they would be much better left alone.

"I well remember one, the child of a distinguished American; two able and highly intelligent women devoted themselves to it all day long. It had ducks and water fowl in its bath, with which it played while the process of ablution was going on; and pretty it looked with its painted toys. But it never got far on its journey in life." Thus spoke Dr. Fothergill.

Progressive loss of flesh and appetite with other indications of failing health point to the need of medical measures such as syrup of the iodid of iron, lactophosphate of lime, iron, arsenic and bitter tonics.

These children should reside in a healthful locality and spend much of their time in the open air. Samuel West of London, believes that the only requisite which every suitable climate possesses is that of admitting of the patient's being as much in the open air and sunlight as possible.

"Whenever sufferers can spend all day out-of-doors, and when indoors can still live in a pure atmosphere, they will do well." I think, however, it should be remembered that no climate is proof against the dangerous emanations of a filthy soil, either in city or country. For this reason, if one be in search of the best possible climate for children predisposed to consumption, villages with populations of a thousand or more should be avoided. If the child must be kept in the village or city, as is often the case, great care must be observed in getting pure water and in correcting bad sanitary conditions in and around the house. I remember being called to see a patient (tubercular) under whose window was an open privy vault. The house had defective plumbing, and stood in a swamp. Such a combination of objectionable conditions must, as a matter of course, be unhealthful and should be shunned, no matter how good the climate of that particular part of country. It is interesting just here to note that Migneco, by a series of experiments, determined the exactness of Koch's statement that sunlight kills the tubercle bacillus in a short time. Bacilli, after ten or fifteen hours' exposure, cause only local tuberculosis; while after twenty-four or thirty hours, they cause no symptoms as a rule. In certain cases the bacilli will remain active, but will be attenuated in virulence. From these facts we argue that the free admission of sunlight into houses in which children with a tubercular diathesis live, will do much to aid nature in her effort to carry them through to a healthy manhood and womanhood. Dry cold air, if the child be warmly dressed, will do it good rather than harm. Strong winds, warm or cold damp air, and a foggy atmosphere avoid. As soon as the child is old enough, proper breathing, with chest gymnastics may be practiced with great benefit. Dr. G. R. Butler recommends certain movements (*N. Y. Med. Journal*, Oct. 20, 1894), all of which are simple and easily accomplished.

Exercise A. First movement: Flex and rotate arms, fingers to shoulder, elbows at side. Second movement: Extend arms to side, palms down. Third movement: Flex and rotate arms, fingers to shoulder, elbows at side. Fourth movement: Hands down and back, extend palms midway.

Excercise B. Inhale, hold breath, revolve right arm twice slowly; exhale.

Exercise C. Arms extended to side and back, palms up. Grind shoulder blades, moving hands in small circles.

Exercise D. First movement: Extend arms at side, palms up. Second movement: Palms together in front of body. Shoulders high. Third movement: Rise on toes, inhale; extend arms to side and back as far as possible.

Exercise E. First movement: Exend arms to side, palms up. Second movement: Arms up touching fingers on top of head. Third movement: Clap hands over head, full length up. Fourth movement: Arms down at side.

I believe great benefit accrues from forcible inflation of the lungs, holding of the breath and a slow expiratory movement, the air escaping gradually through the nostrils. By this process the air vesicles, especially those of the apices, are well distended; an increased amount of oxygen is introduced into the blood and the heart is strengthened in its action. These are some of the measures which seem worth the trying if we would prolong the lives of the individuals under discussion, and it is certain that these lives are worth the effort. That many of the number develop tuberculosis and die in consequence of it, the statements of Lorey and Biedert prove. The former gives the ages of 162 tubercular cases among children as follows: From the first to the third month, 1; from the third to the ninth, 11; from the ninth to the twelfth, 31; between the first and second year, 55; from the second to the fourth, 41; from the fourth to the twelfth, 23. The latter says that 6.8 per cent. were observed under 1 year of age; 48 from the first to the fifth; 27 from the fifth to the tenth, and 18 per cent. from the tenth to the fourteenth year. Thus it is seen that tuberculosis is quite frequent between the ages of 2 and 4 years. I have said nothing about serum therapy in this connection because it seems to me that results thus far obtained do not justify its employment. If it could be shown that an antitubercular serum has the property of setting into action the processes which protect the economy against the development of the disease then it would seem wise to use it. But of that we can not yet be certain. What the individual with a tubercular diathesis wants is a reinforcing of the tissues; an increased resisting power in each cell; an uplift of the vital powers; the very best life force conceivable. This is to be gained, perhaps with the greatest certainty, by attention to the suggestions already made.

I think any paper on this subject would be incomplete without reference to the intellectual training of the child, a matter concerning which both parents and physicians have very different opinions. While in the South last winter I heard two mothers discuss this question, and as their views bear directly upon

the question before us I quote what they said. Mother number one said her child was well advanced in her studies and very fond of going to school. Mother number two said: "Is that your child at the far end of the piazza; that little tot about 6 years old?" "Yes." "Well, doesn't she look pale and tired? Seems to me I would worry if she were my child." "Oh, well, I know she is weak and apt to develop lung trouble, but of course she must know something; how dreadful to grow up and be behind other children in her studies." "Well, we tried your plan for a time with our little daughter, but she soon ran down in health, so we took her out of school and have kept her as much as possible in the open air. For the last few winters we have brought her to Florida to escape the sudden severe changes and cold winds of our northern home. Here, she is out of doors all day when the weather is fine and she shows the benefit of this new life. Look at her and see how rosy and vivacious she is." "Yes, that is true, but when will she learn anything?" "When she is older and strong enough to endure the strain and confinement. What we want is to have our daughter live and enjoy good health." "Well, do you know I really think you're about right. Maybe our child would not be so frail if we had adopted a different course. The truth is we were compelled to leave our home and come South on account of her failing health. We are quite anxious about her."

Is there not a lesson to be learned from this little dialogue? Is it not manifest that the child with a tubercular diathesis will do better if allowed to exercise freely in the open air than if shut up several consecutive hours daily in a room, bending over a desk, breathing vitiated air and having its delicate organization unduly taxed? What is to be gained by developing the intellect at the expense of health? Suppose the child does not learn much from books during the first few years of life? There will be time enough later, if the health be carefully looked after, for the acquisition of knowledge. As a rule, these children are precocious and are disinclined to enter into the wholesome and active sports of which their healthy little friends are naturally so fond. Hence the more urgent the necessity of insisting upon plenty of exercise and life in the open air. In many instances a few simple lessons may be taught each day but beware of overdoing in this direction. There are other details of management which will present themselves to your mind as a remedy for this state of affairs, but I trust I may sufficiently emphasize the importance of doing more than has been, or is being, done for a large number of children whose inheritance makes them liable to the development of one of the worst diseases we have to deal with, one which destroys one-seventh of mankind. Is it not possible that we may err in not considering as worthy of our special and thoughtful care the individual who does not present active positive symptoms of disease? Are we not prone to turn such an one aside with a few indifferent remarks about the necessity of taking care of the "general health"? In some instances do we not assume that parents will, in some way, take care of these little people; although we know them to be but poorly instructed, at best, as to what ought to be done. Perhaps I am more urgent in this matter than some of my professional friends; if I am, it is because some sad cases, cases badly neglected in early childhood, have come under my observation. Just recently a young man came to me with disseminated pulmonary tuberculosis. Notwithstanding his early tubercular diathesis, he was allowed to remain in a climate calculated to enervate rather than to energize his feeble constitution. No particular attention was paid to his diet. He was allowed to run about, poorly protected, in rainy and cold weather as well as during the warm and dry periods. When he had a cold he was given a cough mixture and allowed to recover as best he might. If he complained of chest pains or a feeling of lassitude, he was ignored or told they were "growing pains" and laziness. When he complained of poor food or could eat but little of good food he was told he was "finicky." When he became old enough to help support the family he was put to work where the surroundings were unhygienic, hours long and the trade wearisome. Being obliged to go to the factory in all kinds of weather, he soon caught cold. His cough became troublesome and to make matters worse he got the grip. His lungs being his weak point he rapidly developed all the signs and symptoms of tubercular phthisis, so that at the present moment he is about hopeless, as I am, concerning his ultimate recovery. As he sat in my office dejected, poor, alone in the world and too weak to earn a few dollars with which to pay his board bills, when I was told that unless some generous friend should give him a little money he would not know where to find rest for his weary and diseased body; when I thought of how comparatively easy it would probably have been to have prevented such a state of affairs by careful and early attention to his physical condition; when I thought, in connection with his case, of many others I know of I was deeply moved and convinced of the wisdom of speaking, in conjunction with others, in behalf of this vast multitude of unfortunates who, without timely aid, must, many of them, drift into just such a condition of helpless physical wreckage as is now his portion.

DISCUSSION.

Dr. W. S. CHRISTOPHER of Chicago—I heard enough of the paper to get the drift only, and I would like to hear somebody first discuss it who is opposed to it, because I happen to favor the Doctor's side in toto. The subject is one that is part of a broader matter than the relation of tuberculosis; it involves the relation of the environment to the child. Many factors the Doctor has brought out relating to the damage of the child by tuberculosis that are certainly causative factors, that assist in developing tuberculosis, that are equally potent in the development of other diseases. The reason for the existence of this Section, the reason for the study of pediatrics at all, as disassociated from other branches of medicine, is the necessity of reaching all the factors that go to make out of a puny child the strongest possible development. It is the function of the pediatrician not to cure measles or handle whooping cough, or give pills and powders, but to make out of a given child the strongest possible development; to first take into consideration all those factors of heredity which may, if allowed to accumulate, damage it, and then by so adjusting the environment, diminish the potency or effect of these factors as far as possible. With reference to the child with tuberculous ancestors, it becomes a question of building up the tissues with that form of food which experience shall in the future show to be the best, possibly along the lines that we now think the future may show. But when we get a history of heredity, it should never be expressed as "negative." There is no such thing as a negative family history. The family history is as much a part and parcel of the diagnosis of tuberculosis in childhood as is the demonstration of the micro-organism. The family history may show that the mother is tuberculous, or gouty, or that the mother is neurotic or possesses one of the types of mind and body that may be transmitted to the child, but the family history is never negative. We might as well say the child is sick, but no detail is necessary. It brings up the broad subject as to the influence of heredity as a factor of diagnosis. It also forces us to face the second element in diagnosis, that is the element in nutrition, which includes not alone the question of

how much food the child has had, not alone the question of the quality of the food the child has had, but those deeper questions of the relation to each other of the different viscera of the body. If we have a child with a mammalian pair of kidneys and a reptilian type of liver, not by any means uncommon, we have such a maladjustment of organs that there is necessarily a clashing of functions. Such things are to be considered under the title of the nutritive disturbances. Having settled these questions, then we are prepared to take up the question of whether there is tuberculosis or other infection in the case. I agree with Dr. Stickler, that the infection which is most important, the one we must fight most commonly, is this one of tuberculosis, and the essayist is very well justified in taking for his subject the relation of tuberculosis, as he has done. What I heard of the paper did not bring out the elements of the relationship of tuberculosis especially and that is the reason I have gone over the subject more broadly.

Dr. J. A. LARRABEE of Louisville—The remarks of Dr. Christopher lead me to believe we are all sliding on one hill. It seems to me the Doctor might have given us something to take exception to, but as it is we all agree with him.

Now, as to the broad subject of pediatrics, which we as pediatricians understand, but which the general practitioner does not comprehend, Dr. Christopher has put in a nutshell the whole evolution of this Section. It can not be appreciated by those who are not brought in daily contact with children. We must have the soil as well as the seed. Seed will grow luxuriantly and produce well only in soil that is adapted to it. There is in each of us a weak spot; we are wounded just as Achilles was wounded. We are protected to just the extent our ancestors were protected. A man is thrown into this world, representing the forces behind him, just as a ball is thrown into the air and will go a distance proportionate to the force with which it was thrown. There is nothing so catching as longevity, and that is the reason the life insurance companies in the secret room pass or reject the applicant on that ground alone. You may have disease, gout or rheumatism, but if your parents have been octogenarians, it goes far for you. But a bridge is not stronger than the weakest point. To know the diathesis, the way my patients are traveling, is more important to me than knowing the acute disease. Knowing the road they are traveling, I believe the fortification is in building up the body. The Doctor's paper, in fact, bore up that statement; keep healthy and you will not be sick. The question is how to do this. It is known that whether the body craves or demands food makes no difference. The system of cramming or forcing food into the system is known. We all know how the goose is stuffed to make his liver good. The goose is not goose enough to eat all the time, and they have to stuff him just to make him grow fat. The goose, if he could would not do this, but he can not prevent getting fat when he is stuffed. So I believe in feeding, but above all, in sunlight and fresh air. Another point is the re infection of tuberculous patients. These patients are born with barrel-shaped chests; they have a peculiar tubercular build. Those who are experienced in the study of diseases of children, can at once relegate the patient to his class. These barrel chested individuals need development. You must put them in an atmosphere that is free from tuberculosis. The cause of most of the deaths in tuberculosis is reinfection. We all have improvement in tuberculosis from a proper course of treatment, and under the microscope you can discern a lessening of the number of bacilli and you know you are doing the patient good. And any man who is gaining flesh is doing better, no matter what the microscope shows. But the patient becomes reinfected and down he goes again. Many parts of this country are becoming simply dumping grounds for these cases. Florida and southern Georgia for a time presented almost a sure cure for these cases, but now how is it? The germs are so thick there you can bottle them up and take them to Chicago and start an epidemic. The value of fresh air is emphasized by the fact the aborigines did not have tuberculosis.

Just in proportion as men live in cities, just in proportion as we congregate we will have consumption. The Indian did not have it. In the State prison in my own State, the Governor, who is a doctor, I am glad to say, took one look into the black hole and said, "This will not do; it can not be." Every human being put in there, in darkness and filth and bad surroundings, contracted disease, because the atmosphere was saturated with it. I expect we would smile at any one who would percuss the lower part of the lungs for incipient phthisis. We would say, "What are you doing there?" We always examine the apices of the lungs. Why? Simply because the upper part of the lungs has not been used. We are apt to store rubbish in attics, and nature does the same thing. We have about one-eighth of the people today suffering from residual air. The upper part of their lungs, the part beneath the clavicle, is never inflated at all. I do not blame the Irish gentleman, Mike Robe, for getting his work in there. We do not breathe to the extent we ought to. It should be the rule of every individual at the end of the day to carry out the West Point rule, and with the heels and buttocks on a line against a wall, take twelve deep respirations before retiring.

I could not go further without simply endorsing what has been said. I thank you for having given this the trend it ought to have, and I hope this discussion will not stop with these erratic remarks.

Dr. HENRY E. TULEY of Louisville—This subject certainly is an important one, but I think the Doctor laid too little stress upon the importance of infection in children. I think Dr. Holt's statistics with reference to the postmortem findings in children would show us that the infection comes largely through the bronchial glands. In 99 per cent. I think the infection was noted to be in the bronchial glands. In many cases this was the only place where the infection was noted; in others, bacilli were found in other organs, but possibly they were only secondarily infected. So it would seem to me in the younger children the proper oxygenation of the blood and deep expansion of the lungs, would have little or no effect on the development of tuberculosis.

Another point, that probably more stress should have been laid upon, is how little effect we get from the placing of these children, with inherited diathesis, in hospitals, even when they have some concurrent disease. They develop the condition known as hospitalism quicker, possibly, than other children. The providing for them of open air roof gardens and sunning places, and open air porches where these children can stay, is certainly looking to the prevention of this condition of hospitalism. But even then they do badly in institutions, and if they are placed in hospitals with other diseases they should be kept there as short a time as possible. I think that is a condition that is not generally recognized.

Dr. COOK of Illinois—There were just one or two points slipped over in the discussion. In the matter of feeding, Dr. Larrabee's illustration was a good one, but he stopped short of the mark. A house is not necessarily well watered because it has a tank of water on top of the house. Assimilation is an important part of nutrition, and this may often be increased by proper hygien c care. Thus, fresh air, etc., are excellent, but I think I derive more benefit in these cases of feeble diathesis by massage than by any other one method of treatment. A thing that is not unknown, but I think not frequently enough thought of, in the care and management of these feeble children, is to carry the food out after it has been digested, and aid the already overworked heart and lymphatic system by assisting the circulation through the venous circulation, to get the toxins thrown off through the alimentary canal. In reference to the prevention of reinfection of tuberculosis, one practical thing that was not brought out, can be done by the physician, especially in the poorer familes, namely, tell them whatever else they may do to take their carpets up and renovate them. Get them to practice hygiene daily, and I think fewer cases will occur than under any other simple means the physician can direct.

Dr. EDWIN ROSENTHAL of Philadelphia—I must tell you briefly what we do in Philadelphia. Dr. Flick read a paper on tuberculosis in the fifth ward. He noted all the houses in the district and made a diagram. I am acquainted with his work and I know in those houses emigrants came to reside and took the disease and died; not only children but adults as well. He therefore presented those papers to the county and State societies, and I believe to this ASSOCIATION also. In the city here we can demand from the board of health the cleansing of a house in which a tuberculous patient has died. Then we show these patients how to make cartoons to spit in and how to disinfect the sputum, etc. We have two homes for consumptives here, one for males and one for females. We also have hospitals for consumptives. We have a country home for the hospital, where most of these tuberculous patients are taken in. Then we have a seaside home for sick children, where we remove these children and give them fresh air. I believe, with Dr. Larrabee, that in an infected atmosphere we can not look for a cure. A doctor in England has written a book on the care of children. Where children are put in asylums and fed on bread, meals, etc., they will become scrofulous and afterward die of phthisis. This is a question of vital interest. In the Women's Protective Association one subject chosen was tuberculosis and its prevention.

Dr. U. J TAYLOR of Philadelphia—In a short discussion like this not all important points can be brought up, yet I want to allude to one of great importance which has not yet been presented, that is, exercise of the right kind. The difference be-

tween man in the savage state and the man in the civilized state is that the savage and nomadic, having leisure time, spends it in sports which keep the system in good condition, the effete material all thrown out and the chest well developed. In civilization we employ our time in some sport, such as a game of cards, or we may go to the gymnasium, but even then we go to bed without expanding our lungs. If the children engage in some kind of sport in which there is a struggle for mastery, a game of ball or a wrestle or a boxing match, they exercise their muscles and their lungs. That I think is of the greatest importance and not second to any one. Fresh air brought into contact with the air vesicles in this way will do good, but fresh air brought in by twelve perfunctory breaths, I believe, as a rule will not do as much good.

Dr. DECOURCY—While the paper treated the subject largely from a preventive basis, it did not start out with what seems to me to be the first of the great list of preventive medicines. Calisthenics and climatology and all of those various branches of hygiene have been touched upon, and they are certainly absolutely necessary as preventive measures. Inhalations and lung expansions, which have been mentioned, are certainly of very great importance, yet there is a step behind all of these things which I think demands the attention of the physician. It was said by one of old that the sins of the fathers are visited on the children to the third and fourth generation, and one would think so from the tone of this paper, and truly. If that be so, then what is the physician's duty with regard to instructing his patient as to marriage and progeny? Should he advise the children of tuberculous subjects to unite, or should he advise them on either side to select a partner in marriage who is as free from inherited predisposition to phthisis as may be possible? I will be glad if the Doctor will bring out that point in closing the argument.

Dr. W. S. CHRISTOPHER of Chicago—The Doctor's paper, I think, refers more particularly to the question of the etiology of tuberculosis and incidentally to its prevention, rather than to any other factor. As at least a large part of the whole subject of pediatrics is that of prevention, it is interesting to note the phase of tuberculosis taken up by the essayist. We all know very well the methods of prevention of infection, so well carried out in some places and so little carried out in others; but the limitation of one's self to this phase must be left with unsatisfactory results, and I am satisfied the methods given by the essayist will ultimately prove much more valuable than the direct attack upon the organisms. The point brought out by Dr. Tuley I regard as one of extreme importance and I am very glad to have an opportunity to express some opinion on it. He refers to the paper recently published by Dr. Holt of New York, in which is brought out these factors: 1. A very large, and indeed very alarming, percentage of cases that die from tuberculosis present lesions within the thorax. The anatomic characteristics of this disease are to be found principally in the bronchial glands and in the pulmonary tissue. A very small percentage is to be found in the brain, a much larger percentage in the gastro-enteric tract. There are but two channels of entrance for the micro-organisms. From the fact the pulmonary glands are infected most frequently, Dr. Holt infers that the pulmonary channel is the channel through which the germ has found entrance in these cases. It is the justice of this assumption which I want to call in question. If this assumption be just, then the conclusion of Dr. Holt that the attention to the milk supply is relatively unimportant, is likewise just. But, if the conclusion Dr. Holt draws is unjust, then the relaxation of attention to the milk supply, which we are just about getting into shape, must be most horrible in its results to tuberculosis in children. Is Dr. Holt justified in saying that the germ must have gained entrance through the bronchial tract in children? He might just as well say that the lesion of variola being found on the skin, therefore the disease must have gained entrance through the skin; and the same thing he might as well say about any of the exanthemata. Does the germ of pneumonia gain entrance through the gastro-enteric or the pulmonary tract? I have seen cases in which it seemed to me to gain entrance through the gastro-enteric tract and yet produced pulmonary trouble. A child with tonsillitis has then pneumonia and this is followed by cerebrospinal meningitis which terminates fatally. The pneumonia was croupous; furthermore, the tonsillitis was a pneumococcus infection. It seems to me clear that the organism which caused the pneumonia and the cerebrospinal meningitis gained entrance through the tonsil. In that same family a child developed a diarrhea, and following that diarrhea a cerebrospinal meningitis, and died without any lesion on the part of the lung. It can hardly be doubted that these two children had the same cause for their cerebrospinal meningitis, and it points very clearly to the pneumococcus as the cause of the condition; and, if anything, the organism which affects the lungs primarily gained entrance to the circulation through the gastro-enteric tract. If Dr. Holt's theory be correct, then how will he account for such things as primary cases of tubercular meningitis? It is no answer to the argument to say there is no such thing as a primary case of meningitis, to assume there must always be an infection somewhere else in the body, because we know that is not true. Hip joint and Pott's disease we know do occur without the lung or any other structures in the body being involved. They occur with sufficient frequency for us to know they do occur. The contention of Dr. Holt that the preponderance of lesions in the thoracic cavity proves conclusively that the germ gains entrance through the bronchial tree, is utterly untenable. He may be thoroughly right that in many instances they do, but his data do not show it. His data can not show it, and they ought not to be permitted to be extended throughout the profession and permit people to let up on the attention to the milk supply.

Dr. STICKLER (in closing)—In reference to marriage, I will simply say that if I could I would object in every case where a young man contemplates marrying a tuberculous young woman, or where a tuberculous young man contemplates marrying a young woman who is free from the disease. But that was not the point of my paper. I wished to direct your attention to the fact that it is our duty to look after the children already born. It is your duty and mine to do for these children what we ought; to save them from the disease their parents have made them liable to. We talk here freely and then we go home to our practices to attend some tuberculous mother, and there is a little child in a crib or on the floor, concerning whom we say not a word, and we do not do it simply because we are are not asked to. Now, is not that true? The Good Book says, "show me your faith by your works." It is not because we do not believe in an inherited diathesis. It would be foolish to say that we do not believe in an inherited tendency to disease. The trouble is we do not act sufficiently. This has been true in my experience. I have sometimes hesitated very much before speaking to the mother about this matter, for fear they would feel that I did so looking for a fee. We should interfere oftener than we do; I do not think we are living up to what we talk of. With reference to milk, we are trying in New Jersey to do something of this kind. We have a dairy there, presided over by a committee of investigation, who look into the quality of the milk and see that the dairyman does not do that which is prejudicial to the users of the milk. There is a little trickery which we believe is being done to a certain extent. The dairyman may have a call for 300 or 400 quarts of milk, and perhaps there is only 250 quarts of milk that has been inspected. He will buy the balance of what he wants and put it into the cans and put the certified label on the bottles.

THE ADVANTAGES OF VAGINO-ABDOMINAL SECTION.

Presented to the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY THOMAS H. HAWKINS, M.D.

DENVER, COL.

My work in pelvic and abdominal surgery has not been entirely satisfactory. In a very large proportion of operations for the removal of abscessed tubes and ovaries, and in a smaller percentage of other pelvic operations requiring celiotomy, I have deemed it necessary to resort to drainage, and in many instances to quite extensive packing with iodoform or sterilized gauze. So far as concerns sepsis and hemorrhage the results have been exceptionally good, the mortality being reduced to about 4 per cent. In certain cases, however, I have had considerable difficulty with fistulous openings that were a source of annoyance and anxiety, both to myself and my patients. Some of these fistulæ closed within a few months after the operation, others in several years, and a few are not yet filled up completely. Ventral hernia has occurred in my practice in about 12 per cent. of cases where the gauze packing and glass tubes were used.

These accidents have not been confined to my own experience. I think I may safely say that within the

past five years I have seen from two to five examples of pus-discharging openings and perhaps as many of ventral hernia for each of our prominent celiotomists in Denver. My observations also prove that these mishaps are not limited to Colorado operators. Three cases of abdominal fistulæ following celiotomy by Eastern surgeons, have come into my service at the Arapahoe County Hospital. I have another at the present time, operated on outside of Colorado; also one of ventral hernia. I have had the opportunity of examining, in the preceding two years, five patients with fistulous openings and three with ventral hernia ensuing upon abdominal sections performed in other States than Colorado. In short, I have encountered cases of this character from nearly all the large cities except New York. Whether the surgeons of the metropolis are so fortunate as not to have such complications or keep their poor results at home, I am not prepared to decide. Let us hope that the former supposition is the correct one. The most distressing feature of these cases troublesome sequelæ is their refractoriness to every known means of cure. Dilating and curetting these fistulous tracts is rather a formidable procedure and is by no means always successful.

I have performed vaginal hysterectomy upon two cases, one of my own and one operated on in the past, and succeeded in permanently closing the fistulous tract. Two of my cases of ventral hernia went East and were operated on by successful surgeons. They returned to Denver, believing themselves cured, but are at the present time suffering from the old affliction, which is somewhat worse than before operation. The treatment of these deplorable accidents is not within the scope of this paper, and I call attention to them only to illustrate the importance of avoiding them if possible. With the method I have pursued in most of my cases of pelvo-abdominal surgery, during the past two years, there is no possibility of the formation of fistulous openings through the abdominal wall and the danger of ventral hernia is reduced to a minimum. In every instance, when it seems likely that drainage or gauze packing will be required, I precede the abdominal with a vaginal section. This combined method is in no sense original with myself as, to my knowledge, many others have resorted to the same plan.

The patient is placed on the table as for an ordinary vaginal operation, and the abdomen and genitalia are rendered as nearly aseptic as possible. The uterine cervix is hooked, its canal mopped out with sterilized gauze dipped in bichlorid solution, and then curetted. After gentle dilatation, so as to admit a curette of medium size, the uterine cavity is curetted carefully, dried with sterilized gauze and washed out with a weak solution of iodinized water or creolin. This is followed by a sterilized salt solution, and the cavity is again thoroughly dried. The cervical canal is packed with a bit of iodoform gauze. A semicircular incision is now made posteriorly, close to and half way round the cervix, into the cul-de-sac. If time permits, I sometimes stitch the peritoneal membrane to the vagina by means of a catgut suture; then, with my finger I proceed to explore the pelvic contents, breaking up adhesions, slowly and cautiously separating the uterus from the mass on either side and severing, as far as practicable, from below upward, all the false attachments of the ovaries and tubes, as the case may be, taking care not to rupture the abscesses or cyst, if these be present. In many cases, where simply large abscessed tubes or ovaries are found, or a hydrosalpinx, or a small ovarian cyst, this is evacuated and the pelvic cavity is washed out thoroughly and packed with gauze, no further procedure being required. When the lesions are more extensive, after as much is accomplished through the vaginal route as seems prudent, the wound is thoroughly flushed and dried out with sterilized gauze, with which it is then quite snugly packed and the vagina moderately so.

The patient is now drawn up on the table in the position for celiotomy. The incision through the abdominal wall need not ordinarily be more than two and one-half inches long, as the previous vaginal performance greatly simplifies the operation by allowing the uterus and its appendages more easily to be freed from adhesions and brought into view. The diseased adnexa are removed and the pelvic cavity is dried in the usual way, the gauze below not being disturbed.

In only one instance, in which the hemorrhage was inordinate, have I found it necessary to employ abdominal packing, which was removed at the end of thirty-six hours and the incision closed. In all the other cases, numbering thirty-five, of the combined operation I did no packing through the abdominal wound, an election fully justified by the results.

After completing the work from above, a moderate quantity of gauze is packed into the pelvic cavity, behind the uterus, and is pushed in more closely where there is much oozing. I generally utilize iodoform gauze for the first two or three strips, filling in with the sterilized variety. The stitches are now taken in the abdominal wound, which is closed hermetically by drawing the sutures firmly and catching them fast with forceps. The patient is again brought down into the usual position for vaginal procedures, the gauze packing is removed from the vagina and pelvic cavity, and the parts are once more carefully cleansed and dried. Fresh iodoform or sterilized gauze is now packed well up into the pelvic cavity and is made to fill the vagina snugly. A pudendal pad is next applied and held in place by the nurse's aseptic hand while the abdominal wall is re-opened. The gauze put in from above is quickly removed; rapid inspection is made for hemorrhage; and the wound is permanently closed, uniting the fascia with a continuous chromicized catgut suture, ordinarily, unless there is reason to speedily terminate the operation. With trained assistants and a skilful anesthetizer, with everything in readiness in a well-equipped hospital operating room, the combined operation can be done, as a rule, in from twenty-five to fifty minutes. When one has performed the operation three or four times, its duration probably need not exceed that of a simple celiotomy for the removal of diseased uterine appendages. It takes perhaps a minute more to clean and dry the genitals, three or four minutes to dilate the cervix and curette, and one or two minutes for the vaginal incision. The time occupied in separating the adhesions from below and putting in the gauze packing is amply compensated when the tubes and ovaries are about to be removed through the abdominal wound.

The more expert operators, especially the Eastern ones who are doing pelvic sections every day, may not appreciate the advantage gained by the breaking up of the adhesions from below, but in my own somewhat limited experience, I have found that this method enables me to remove the uterine appendages

in about the same length of time as I formerly needed to do the operation entirely from above, a consideration of special importance to us less adept gynecologists of the West. Out of the thirty-five cases operated on by me by the combined method, I have had but one death, which was in no sense attributable to the operation. The patients suffered rather less than former ones. With a single exception the temperature never rose above 99.5, in this case the temperature (reaching 103 on the fifth day and normal on the seventh) being affected by a severe cold and tonsillitis. In every instance the gauze was removed on the third day, and the vagina flushed with warm sterilized water, loosely filled with aseptic gauze and covered with a sterilized pad. I repacked the opening into the cul-de-sac, as a rule, not more than once, and then only with a small strip of gauze. The dressing on the abdomen may remain undisturbed until the fifth to the eighth day.

Every possible objection to the combined operation is, I think, offset by its advantages. A special point in its favor is that when the conditions, as determined through the vaginal incision, permit, we may forego abdominal section and thus greatly lessen the risk. To illustrate: During the period of the above mentioned thirty-five surgical cases I had no less than twenty other patients in whom the cul-de-sac procedure alone sufficed. In one instance I found a cyst of the ovary, ruptured it, irrigated and put in gauze. The patient's temperature was normal throughout and she made a perfect recovery. Another case was that of a hydrosalpinx which I broke open during exploration. The cavity was washed out carefully, dried and packed with gauze, and the woman recovered without complications of any kind. On eleven occasions I tapped abscessed ovaries or tubes, washed them out and drained through the vagina. In one case I found an abscessed tube well down into the cul-de-sac. It was evacuated, enucleated and tied off close to the uterus and removed. The other tube and both ovaries were in good condition. The patient was flushed and drained and recovered without any bad symptoms. In three cases I opened into what was probably a ruptured tubal pregnancy of several weeks standing. The decomposed clots and other débris were thoroughly removed by the fingers and irrigation, and the space was packed with iodoform gauze. These patients recovered without a single bad complication. Finally, in three instances I found no special lesion, except adhesions, about a retroverted uterus. These were carefully and completely broken up and a large amount of gauze packed behind the uterus, which had been pushed forward as far as possible. The convalescence in these cases was short, and complete relief ensued, with the uterus in a better position. All these cases were treated successfully by means of a very simple operation, whereas abdominal section would have been accompanied by much greater risk and probably without as good results.

In complete hysterectomies, where there is extensive oozing and reason to fear hemorrhage, in one or two instances I have thought it best to use packing from above; I have pushed the gauze well down into the opening through the vault of the vagina, then filled the vagina from below. At the end of the first or second or third day, as deemed best for the removal of the gauze, the vagina is emptied and carefully washed. The end of the gauze protruding through the abdominal wound is cut off close to this incision; the part remaining may be softened with a little sterilized water. By means of a tenaculum or dressing forceps the residue of gauze is then pulled out *per vaginam*. The incision in the abdominal wall is now closed, and the pelvic city and the vagina are again packed from below.

SOME REFLEX DISTURBANCES DUE TO PELVIC DISEASE.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN MILTON DUFF, M.D.

PITTSBURG, PA.

Reflex disturbances in the human body from whatever cause, are generally a great source of annoyance to the practitioner. Especially is this the case when the original disease does not present marked symptoms, or at least where the reflex disturbance overshadows the real disease. These conditions make the diagnosis difficult and consequently the treatment is often misdirected. I will briefly report a few cases in point:

Case 1.—Patient (A 3474, South Side Hospital case-book), Mrs. A. N., age 39 years, married fifteen years, no children. Family history good and excepting ordinary diseases of childhood has always been healthy until two years ago, when she began to show symptoms of chronic inflammatory pelvic disease. For the past three months she has been suffering from insomnia, sleep being procured only by the use of hypnotics. For some time her mental condition has been bad. Her conversation is now very incoherent. She has a high temperature, rapid, feeble pulse, great tenderness on pressure over the suprapubic region. Bimanual examination reveals enlarged and tender ovaries, tubes and uterus. On April 6, 1896, I removed the uterus and appendages by the vaginal route. She made an uneventful recovery. At the end of three weeks her mental condition was apparently normal. Eight months later, the last report I had from her, she had gained over fifty pounds in weight and expressed herself as in perfect health physically and mentally.

Case 2.—Patient (A 2923 South Side Hospital case book), Mrs. C. Z., age 30 years, married ten years, mother of four children; chronic ovaritis and salpingitis; mental condition good. I removed her uterine appendages Sept. 16, 1895. She made an uneventful recovery and left the hospital, presumably well, Sept. 22, 1895. Three weeks afterward I was called to her father's house to find her suffering from violent mania, having attempted but a few hours before to commit suicide by cutting her throat. At the end of one year this woman had returned to a normal condition of health. This is the only case of which I am aware in which mental aberration followed the removal of the appendages in my practice.

Case 3.—Patient (A 4081 South Side Hospital case-book) Miss E. Mc., age 27 years; health always good until within past three months, when she began to be affected with nausea and occasional vomiting after eating. For the past two weeks the stomach rejects all food and in order to sustain life nutrient enemata have been resorted to. Examination revealed a cystic ovary, which I removed on Dec. 4, 1896. The patient left the hospital Dec. 27, 1896, apparently well, not having vomited any since the second day after the operation. At present she is in excellent health.

Case 4.—Patient (A 4075, South Side Hospital case-book), Mrs. S., age 48 years, mother of two children, youngest 20 years old; has history of pelvic disease for five or six years. Her trouble was not sufficient, however, to keep her from her household duties, except for short periods of time, until July 1, 1896. At this time she was attacked with nausea and vomiting. Dr. Boyd of Knoxville, Pa., was called to see her. After exhausting his resources medically, as well as those of a number of practitioners who were called in consultation, without avail, the patient was removed to the South Side Hospital on Nov. 30, 1896. At that time she was scarce more than a living skeleton. She had been nourished entirely *per rectum* for eighteen weeks, the stomach during this time apparently rejecting everything, even to water. Her condition was such that I hesitated to attempt any operative procedures. My colleagues on the staff advised against it, as they did not think she could even bear the anesthetic. She and her family, who

had persistently refused for several weeks to allow an operation, insisted that she be given the chances. On Dec. 2, 1896, I removed two large pus tubes and cystic ovaries. Her recovery from the operation was slow, as the wound became septic, she not leaving the hospital until Feb. 8, 1897. She, however, never vomited after the third day following the operation. She was in my office a few days ago, has regained her normal weight and is now attending to her ordinary household duties.

Case 5.—Mrs. K. M., age 32 years, mother of three children, the youngest 4 years old. She has had symptoms of pelvic disease for three years. Her principal trouble, however, is that she has been almost a constant sufferer from sciatica on the right side for two years. One year ago her uterus was curetted and cervix repaired, after which she rapidly grew worse. For the past six months she has been unable to leave her room except when carried down stairs. She could only walk with help on the level floor. On Dec. 10, 1896, I removed the right ovary, which was cystic and generally adherent. She was discharged from the hospital Jan. 12, 1897, free from sciatica and able to walk without help. A few days ago she came by herself on the train and without inconvenience walked several squares to my office.

Case 6.—Patient (A 4360, South Side Hospital case book), Mrs. S. Mc., admitted May 8, 1897. Examination revealed a chronic inflammatory condition of the uterus and appendages. The patient dates her trouble from her last confinement, eight years ago, since which time she has been having occasional epileptoid seizures. For the past two years these seizures have become more frequent, sometimes occurring five or six times during the month, their occurrence being more frequent near the menstrual period. For several months she has been suffering from insomnia and has been in such a nervous condition that she could not be induced to remain alone during her waking hours. On May 12, 1897, I removed her uterus and appendages by the vaginal route. In this case, as only eighteen days have elapsed since the operation, it is too soon to draw conclusions. At the present time the patient is up, walking about the room and says she feels splendid. She has not had a convulsion since the operation. She eats well, is perfectly free from pain and has slept well for the last twelve nights. She will now remain alone without comment. To use her own words, as she expressed them to the Chairman of this Section when he visited the hospital a few days ago, "All that fear and ugly feeling has gone and I believe I am a *new woman*."

I have thus presented these few cases without minutiæ, hoping they may form a nucleus for a discussion upon this, to me, interesting subject. I do not wish it to be inferred that in my practice all cases have been as successful as those reported; such would be far from the facts, as I have frequently been disappointed in results.

A CASE OF FIBRINOUS BRONCHITIS.

Read before the Chicago Pathological Society, October 1897.

BY JOSEPH M. PATTON, M.D.
PROFESSOR OF INTERNAL MEDICINE, CHICAGO POLICLINIC.
AND MAXIMILIAN HERZOG, M.D.
PROFESSOR OF PATHOLOGY, CHICAGO POLICLINIC.
CHICAGO, ILL.

Chronic essential (primary) fibrinous bronchitis, croupous bronchitis or bronchitis pseudomembranacea is a rare affection. Its rarity is commented on by every observer of the disease, and is sustained by the small number of cases reported, no observer having seen more than one or two cases.

Birmer[1], who wrote the first extensive monograph on the subject in 1855, says: "Bronchitis crouposa is a very rare affection." Galen[2] observed a case of bronchitis fibrinosa, though he erroneously described the bronchial cast which he saw as a coughed up pulmonary blood-vessel. Tulpius[3] in 1641, presented the first reliable report on fibrinous bronchitis. He described the fibrinous exudate as *surculi venæ arteriosæ expectorati*, and illustrated his report by two drawings which do not leave any doubt as to the nature of the affection. Morgagni,[4] in 1760, described fibrinous bronchitis.

Birmer (loc. cit.) gives an elaborate description of fibrinous bronchitis based on a series of fifty-eight cases, of which number fifty-six were collected by him from literature. Two cases came under Birmer's own observation.

An extensive monograph on fibrinous bronchitis, with a complete list of the literature pertaining thereto, is found in the chapter on this subject by Riegel[5] in Ziemssen's "Handbuch." In 1893 an extensive article was published by Beschorner[6] in which we find the first contradiction of the generally accepted view of the fibrinous nature of the exudate expelled in the form of bronchial casts in fibrinous bronchitis.

In the case reported by Beschorner the microscopic examination was made by Neelsen, who found that sections taken from the casts when stained according to Weigert's formula did not, as they should if composed of fibrin, display a blue color, but became a pale gray. Beschorner, therefore, maintains that the material from which the casts are formed is not fibrin but mucin, and he draws a parallel between the conditions found and the exudates formed in bronchitis fibrinosa and those in enteritis pseudomembranacea.

Similar conclusions are arrived at by Grandy[7] an American, who quite recently, under Weigert's direction, examined microscopically a case of bronchitis crouposa which came to postmortem.

Grandy's report is as follows: Stains of sections from casts; no color with Weigert's stain for fibrin. With thionin there resulted a weak rose color, but formalin preparations do not stain well with thionin. Sections from the bronchi: One can see distinctly how the exudate makes its way from the excretory ducts, and from there into the bronchi, that is into the bronchial exudate.

The exudate in the bronchi and in the goblet cells give the reactions characteristic of mucous: *light blue* with Van Gieson's stain, *rose red* with thionin and rather dark brown with Bismarck brown.

Farther away from the walls of the bronchi the exudate was changed and did not show the characteristic stain. Thoroughly negative was the result with Weigert's fibrin stain. The mass never stained a beautiful blue like fibrin would do, but invariably stained a pale gray like the ordinary tissue.

The results of the examinations of Beschorner, Neelsen and Grandy stand in opposition to the statement of Klebs,[8] who maintains that the exudate in bronchitis crouposa is of a true fibrinous nature. Eppinger[9] expresses the same view as Klebs, and bases his opinion on the result which he obtained with Weigert's fibrin stain.

In the case which we can add to the list of cases of bronchitis fibrinosa already published, the result of the examination of the exudate is such that we must claim that the latter is of a true fibrinous nature and consists of true fibrin.

Unfortunately, chemic tests were not made while the exudate was fresh. Still, the tinctorial tests are so decided in their results that they leave no doubt as to the fibrinous nature of the exudate.

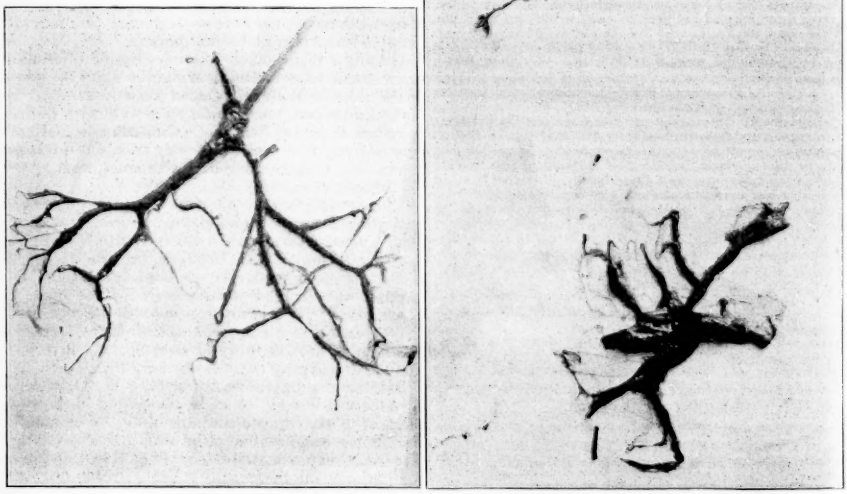
The clinical history of the case (presented through the courtesy of my clinical assistant, Dr. Gottschalk) is not as complete as could be desired, but as far as could be obtained is as follows:

Male, aged 40, married, beer bottler by occupation. Was perfectly well until two years ago, when he caught cold while working in a wet place. During the last two years he has had repeated attacks of bronchitis.

These attacks would last a week or ten days, and were characterized by rather severe rasping cough. Expectoration was comparatively free, and there was no particular pain in the chest. About ten weeks before his recent attack he began to cough and expectorate large masses of tough, tenacious sputum, which was accompanied at times by some bloody expectoration. About four weeks before the expectoration of the cast, he developed high fever, great dyspnea and a distressing cough. There was diminished expansion and dulness over the lower two-thirds of the left lung as compared with the right lung. This attack lasted between three and four weeks, and continued up to the time of the expectoration of the bronchial cast. During this period he was confined to bed and suffered with severe dyspnea, cough, and a temperature at times above 102 degrees F.

Three days ago he expectorated considerable blood. The temperature remained high and the dyspnea and cough distressing.

This morning he had a severe attack of dyspnea and coughing. Temperature rose to 104 degrees F. After considerable effort he expectorated a large mass of material which consisted of the bronchial cast mixed with mucous and quite a little blood. The temperature became reduced almost immediately, and the cough and dyspnea were relieved.



Bronchial cast from case of fibrinous bronchitis.

Within a very short time after expectorating the cast an examination, made by Dr. Gottschalk, showed that air was entering all parts of the left lung with comparative freedom. The percussion note was almost normal, and there were mucous râles to be heard over both lungs. The patient improved rapidly and all trace of him was subsequently lost, so that it is impossible to tell what his present condition is.

In view of the marked tendency of these exudations to recur, the subsequent history of this patient would be interesting, could it be obtained.

Pathologic report.—When the fibrinous casts were obtained, two tubes containing Loeffler's blood serum mixture were inoculated at once and placed in the brood-oven for twenty-four hours. These tubes did not develop any diphtheria bacilli, but colonies, which consisted of large round micro-organisms, probably yeast cells or a species of torula.

The exudate as obtained consisted of a cast of the bronchial tree, of a total length of over 10 cm. Its main short stem, which is about 1 cm. long, is about as thick as a lead pencil and the branches run out to fine filaments. They, however, do not all terminate in a very fine thread, but some, at their ends, show a dilatation which probably represents a cast of an infundibulum. The larger branches here and there show nodular prominences. The larger tube-casts, when examined in cross sections, show a more or less central lumen, and a lamellar structure of their walls The appearance and make-up answers to descriptions given before as to the structure of the casts in croupous bronchitis. The color of the casts is a gray with a tinge of brownish red.

Pieces of the casts were hardened in alcohol, and also in formalin with subsequent alcohol hardening and stained according to different methods.

1. *Gramm's stain.*—The following micro-organisms were found in sections stained according to Gramm: Staphylococci, large bacilli with square ends (about 5 to 7 μ or more long) uniformly but slightly stained; smaller bacilli (3 to 4 μ) having stained very deeply; small bacilli (2 to 3 μ) with rounded ends, which have not taken the stain uniformly; large spherical micro-organisms looking like saccharomyces or torula.

2. *Weigert's formula for fibrin stain.*—The great bulk of the mass of the exudate which shows a fibrillar arrangement, stains beautifully blue, giving a typical fibrin stain.

3. *Hematoxylon.*—The great bulk of the tissue takes a deep hematoxylon stain.

4. *Van Gieson stain* imparts to the tissue a reddish brown color.

5. *Altmann's* acid-fuchsin picric acid stain for granula and fibrin produces a vivid red color.

From the enumeration of the stains used and the results obtained, it is evident that the casts consist of fibrin. Mixed with it are found swollen degenerating epithelial cells and a considerable number of leucocytes.

Optical test.—Small pieces of the casts, after hardening, were washed in distilled water and then teased on a slide and covered with a cover glass, and the effect was watched under the microscope. The tissue became somewhat transparent, though not very much so.

Chemical test.—Two decigrams of the hardened casts, after being well washed in distilled water and subsequently dried between filter paper, were subjected to the action of 10 c.c. of artificial gastric juice. After being in the brood-oven for three hours the exudate so treated had been completely digested. Mucin under these circumstances would not have been digested.

All the tests employed, therefore, had furnished results establishing beyond a doubt the fibrinous nature of the exudate expelled in our case of bronchitis crouposa.

REFERENCES.

1. Birmer: Die Lehre vom Auswurf, Wuerzburg, 1855, and also in Virchow's Handbuch d. spec. Pathol., Vol. 5, "Diseases of the Bronchi."
2. Galen: De locis affectis, Lib. ii, capt. i.
3. Tulpius: Observation med. Lib. ii, capt. xli, p. 115, Amsterlodamia, 1641.
4. Morgagni: De sed. et caus. morb., Epist. xxi, capt. xx, 1760.
5. Riegel: Ziemssen's Handbuch, Vol. iv, pt. 2, p. 186, "Die Krankheiten des Respirationsappar."
6. Beschorner: Ueber chronische essentielle fibrinoese Bronchitis, Volkmann's klin. Vortraege, 1893, No. 73.
7. Grandy: Ueber sogenannten chronischen Bronchial croup. Centralbl. f. Allgem. Pathol., Vol. viii, No. 13, July, 1897.
8. Klebs: Allgem. Pathol. Jena, 1889, Vol. ii, p. 410.
9. Eppinger: Lubarsch and Ostertag; Ergebnisse der allgem. Pathologie, p. 200.

A NEW BINAURAL STETHOSCOPE WITH ARMAMENTARIUM FOR COMPLETE PHYSICAL EXAMINATION.

Demonstrated before the Medico-Surgical Society of New York, Nov. 8, 1897; and before the German Medical Society, Dec. 6, 1897.

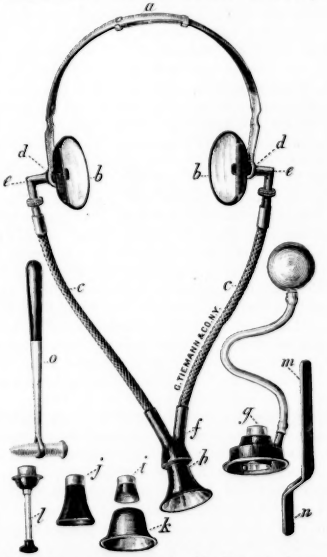
BY S. A. KNOPF, M.D. (PARIS AND BELLEVUE, N.Y.)

Physician to the Lung Department of the New York Throat and Nose Hospital; Former Assistant Physician to Professor Dettweiler, Falkenstein Sanatorium, Germany; Fellow of the New York Academy of Medicine; etc.

NEW YORK.

On March 16 last, I demonstrated to the Section of General Medicine of the New York Academy, an improved stethoscope with an attachable plessimeter.[1] Its daily use since then has shown me some of its imperfections and I have been working for months on the instrument with the object to improve it and above all simplify its use. I am able this evening to present to you the result of my labor, thanks to the courtesy which you extend to me as your guest, and since the instrument differs in all its details from any one thus far devised I may perhaps call it "a new binaural stethoscope."

You will see at a glance that it has neither eartips nor front springs, nor the heavy metal conducting tubes of the ordinary binaural stethoscope. Among students and in hospital services it is not infrequent that one stethoscope passes from ear to ear, and I wonder if the eartips may not have been in some cases the cause of transmitting the various parasitic organisms which are so frequently found in the external auditary canal. But there is no doubt that among physicians who auscultate a great deal every day the constant pressure of the eartips in the canal produced by the large powerful frontspring, and the unpleasant weight of the metal conducting tubes bearing down upon the delicate membrane, often cause discomfort amounting at times to severe pain in the external meatus. I know of a great clinical teacher and world renowned diagnostician of heart and lung diseases who ascribed the partial loss of his hearing to the use of the binaural stethoscope with the powerful frontspring attached to the heavy metal tubes, and to the irritation produced by the presence of the painful eartips. All these inconveniences which the old



binaural stethoscope presents I believe to have effectually overcome. I have adopted an elastic, easily adjustable steel headspring *a*, to which are attached two well-fitting earpieces *b*, covering the external ear, and to which in turn are attached light flexible conducting tubes *c* and chestpieces. Finally, I have discarded the eartips entirely. To exclude external sounds I had devised, for my first stethoscope, round earpieces, which, however, did not fit every ear; I have replaced them by shell-shaped pieces more corresponding to the average comformation of the auricle; and to make the adaption of these earpieces to the temporal bone still more exact, I had them joined to the headband and conducting tubes by a ball and socket joint *d*.

To dampen the external sounds still more, and not have the conducting power suffer, I have these earshells and the angular connecting pieces *e* covered, according to Knapp's excellent method [2] with vulcan-

[1] New York Medical Record, May 1, 1897.

ized rubber. As conducting tubes I have adopted a flexible air-tight soft rubber tubing, on the inside of which a round coiled wire is placed, and over the whole a silk covering is woven.

The acoustic power of the instrument when in use, I believe, to have considerably increased by having the connecting joint *f* and all the bells and the other chestpieces which serve as receivers and transmitters of the sounds emitted from the thoracic or abdominal cavity, made also of metal, and covered as the earpieces, with vulcanized rubber.

To make the stethoscope as convenient as possible it is made so that it can easily be taken apart and placed in a medium sized coat-pocket and rapidly put together again, ready for use. One chestpiece in the shape of a bell suffices for ordinary examination, and this can be left on the connecting joint *f* most of the time. Occasionally, however, we desire to make an especially careful examination of either lungs or heart, and to this end I have devised a little armamentarium which includes all that may be needed to make a most careful physical examination of either thoracic or abdominal cavity. Instead of the attachable plessimeter of my former instrument, I have modified Constantine Paul's suction-cup *g* for the purpose of combining instrumental percussion and auscultation. It consists, as you see, of a rubber ball, tube and cup-shaped chestpiece, easily attached to the stethoscope. By pressing the rubber ball a sufficient vacuum is produced to have the piece retained in its position, enabling one to auscultate and percuss at the same time. But the greatest advantage of this combination lies in procuring absolute contact and stability with the cutaneous surface and thus the exclusion of all other external sounds. Besides, for studying as well as for teaching complicated heart sounds it is often convenient to have the chestpiece remain stationary. With a little care several students may alternately put on the headband and earshells without disturbing the chestpiece retained by atmospheric pressure over the point where the abnormal sounds are best perceived.

For lung auscultation I have a somewhat larger bell *h* than the one designed to auscultate the heart, *i*, and for intercostal auscultation this somewhat oval-shaped chestpiece *j* will prove rather convenient. For sensitive chests and for children the soft rubber-bell *k* should be used. It can easily be attached to the heart bell. To define when necessary a very small and circumscribed area of pathologic changes by auscultary means I have replaced the localizer of the phonendoscope by a little instrument which I call the delineator *l*. When attached to the stethoscope it may not equal the phonendoscopic sounds in loudness, but since it is minus the sound-perverting vibrations, produced by the diaphragm of the phonendoscope, the careful listener will hear all he need to, and this little instrument will certainly serve its purpose quite well in the majority of cases. All the various supplementary chestpieces for lung, heart and intercostal auscultation, the delineator, etc., are finished so that a simple insertion is all that is necessary for their attachment to the stethoscope.

While a plessimeter is not an absolutely indispensible instrument, clinical teachers and all who do a good deal of percussing, will find it at times a great relief in conjunction with a good percussion hammer. The possibility of acquiring a periostitis of the left index finger by using it constantly as a plessimeter, may thus also be averted. I have attached a convenient handle *m* to a hard rubber plessimeter *n*, and as hammer I give Flint's well-known percusser *o* the preference.

It remains only for me to thank Messrs. Tiemann & Co., for their courtesy in repeatedly altering my stethoscope until it became, what I think, a nearly perfect instrument for mediate auscultation. May it find favor with the profession and serve its purpose well.

955 Madison Avenue.

[2] Knapp; Medical Record, November 1895.

APPENDICITIS COMPLICATING OVARIAN CYST AND SIMULATING TORSION OF THE PEDICLE, WITH THREE CASES.

Presented in the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY X. O. WERDER, M.D.
PITTSBURG, PA.

Appendicitis as a complication of an ovarian cyst and accompanied by symptoms strongly resembling those of torsion of the pedicle, does not seem to be of very frequent occurrence; at least I have failed to find any cases recorded in the literature at my disposal. This is my excuse for reporting the following cases which came under my observation and in which the symptoms were supposed to be due to an axial rotation of the tumor when, on the operating table, an appendicitis was discovered to be the disturbing element which led to a wrong diagnosis.

Case 1.—Mrs. C., age 56 years, mother of nine children; one miscarriage; last confinement sixteen years ago, followed by fever; otherwise always healthy. Her present trouble dates from May, 1894, when she was seized with cramps in the abdomen and vomiting, which continued for several days. She had at times most of her pain in the right side. She has had several attacks since then of a similar nature, in the last of which she was attended by Dr. A. Koenig, who discovered a tumor in the abdomen. When I saw her in consultation with him, her acute symptoms, pain, vomiting, temperature 103 degrees, had somewhat subsided, though her abdomen was still very tender on pressure, and tympanitic. It was enlarged by a tumor occupying nearly the mid-region, more to the left, indistintly fluctuating and painful on palpation. The diagnosis as made was: Ovarian cyst, with possible torsion of pedicle. Her removal to Mercy Hospital was advised for the purpose of operation.

Operation, Aug. 13, 1894. On the right and upper surface of the tumor the omentum and several feet of small intestine with the vermiform appendix, were adherent. The latter was not much enlarged, but congested and filled with pus. It was ligated and cut, and the stump covered by a peritoneal sleeve. The adherent intestines were separated with considerable difficulty, many points requiring suture with fine silk to control bleeding. The cyst wall was unusually red and congested. Convalescence was interrupted by an attack of pneumonia at the base of the right lung, on the fifte-nth day. The patient was discharged cured about six weeks after operation.

Case 2.—Mrs. K., age 39 years, mother of seven children, youngest 5 years old. Shortly after last confinement she noticed a lump in the right iliac region that has been gradually growing larger. She was seen in consultation with Dr. Potter Dec. 1, 1896. Two weeks previously she was seized with severe cramps in the lower abdomen, accompanied by vomiting and followed by high fever. The abdomen became tympanitic and extremely painful and tender, requiring frequent opiates to give relief. These symptoms abated during the last few days, though the abdomen, and especially the tumor, were still quite painful to the touch. The tumor occupied the middle of the abdomen, extending above the umbilicus, and showed indistinct fluctuation. She was removed to Mercy Hospital for operation, which was performed Dec. 6, 1896

The cyst walls were dark in color and the seat of extensive adhesions to abdominal walls, intestines and pelvis. The adhe-

sions were freed, bleeding points of omentum ligated and removed. The appendix, which was about six inches by one half inch thick, hard, red and adherent to cyst, was freed, the meso-appendix ligated near the cecum, stripped from the distal end of the appendix; the appendix also ligated near the cecum, clamped one half inch further out and removed by cutting between; stump mopped and covered by meso-appendix which was stitched over it. Convalescence was uneventful; out of bed the twenty-first day, discharged the twenty eighth day.

Case 3.—Mrs. Wm. E. F., age 44 years, mother of three children, youngest 6½ years old; normal convalescence. Last October, after some exertion, she noticed a swelling in her abdomen, which has remained ever since. February 26, I saw her in consultation with Dr. Ryall, who had been attending her through an attack which was started by severe abdominal pains and vomiting, which kept up for several weeks; retention of urine, abdomen tympanitic and very tender. She was very much emaciated and quite feeble, though her acute symptoms had pretty well subsided, excepting her temperature, which remained above normal.

Physical examination showed a fluctuating tumor, filling up the pelvis and abdomen, of the size of a pregnant uterus at six or seven months, which was very tender on pressure. She was removed to Mercy Hospital February 28, and operation performed March 4, after vainly trying to improve her general condition. Extensive omental and intestinal adhesions were separated from the cyst; pelvic and uterine adhesions very firm and difficult to separate, leaving a torn and bleeding uterus. An elastic ligature was therefore passed around it, the body amputated, treating the stump extraperitoneally. The cyst, which was multilocular was exceedingly friable, breaking to pieces at the least touch, in a number of places. Its walls were dark colored, from one-half to one inch in thickness. Microscopic section showed the cyst wall to be necrotic. Contents of the cyst were semisolid, of dirty gray color.

The appendix was adherent to the cyst, tense, enlarged and inflamed, containing an enterolith. The microscope showed catarrhal inflammation. The patient had lost considerable blood during operation and was pretty well collapsed when taken from the operating table, but gradually rallied under active stimulation and improved.

March 7 she showed undoubted evidences of double pneumonia and was in a critical condition for five or six days. She finally improved and made an excellent recovery.

The pneumonia occurring in these two cases was a mere accidental complication, though the lowered vitality and the forced recumbent position for weeks even before the operation, no doubt greatly contributed to its development.

The symptoms, in connection with the knowledge of the presence of an ovarian tumor in these cases, certainly justified the supposition that the complication was due to torsion of the pedicle; especially as the acute stage of the trouble had passed at the time they came under observation. Differentiation would probably have been easier at an earlier stage, as long as the inflammatory area in appendicitis was more localized. The fact that in torsion of the pedicle there is usually a rapid increase in the size of the tumor, marked shock and perhaps a less prompt rise of temperature than in appendicitis, would also probably be of considerable value in differential diagnosis at the outset, but at a later period the symptoms of the two conditions, at least in the cases in which torsion of the pedicle does not lead to a rapidly fatal termination, are so similar that it would scarcely be possible to differentiate them. Fortunately both conditions demand the same treatment *i.e.*, prompt operation; and a differential diagnosis has, therefore, more of a scientific interest than practical importance.

A fact worth noting is that there was undoubted inflammation of the cyst in all cases; in the last two cases this was particularly pronounced, as evidenced by the dark red discoloration of the cyst and the marked thickening of its walls and its unusual friability; in the last case they were actually necrotic in numerous places; conditions strongly resembling those found in torsion of the pedicle and in malignant disease. Malignant degeneration was seriously suspected, but the microscopic examination was negative on this point. There were no evidences of fresh hemorrhagic effusions into the cyst cavity in any of them. That this inflammation of the cyst cavity was not merely an extension by contiguity seems to be demonstrated by the fact that not only a portion of the cyst, the one in contact with the adherent appendix, was involved, but that the whole neoplasm seemed in a state of active inflammation with marked hyperemia and thickening of its walls, and in one, even at least partial necrosis. We must, therefore, suppose that the inflammation was caused by an infection from the appendix and not by a simple extension of the inflammatory process.

In conclusion, I wish to call attention to the method adopted in treating the stump of the appendix in the last two cases. It is so simple that doubtless it must have been used before me by other men, though I have been unable to find any account of it. It consists in tying the meso-appendix and the appendix separately near its insertion into the cecum. The meso-appendix is then stripped of the distal portion of the appendix down to its ligature, the latter cut off about half an inch above, and the stump covered with the freed meso-appendix, and attached by one or two superficial sutures. By this means the whole stump is completely buried under a layer of peritoneal tissue. This can be done with more rapidity than by inversion or covering the stump with a peritoneal sleeve, and it certainly answers the purpose in every respect. I have followed this plan in all my cases requiring appendicectomy during the last six months, where the meso-appendix had not sloughed away. It has been perfectly satisfactory.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from Vol. xxix, 1315.*)

XIX.—DISEASES OF THE URINARY AND GENITAL ORGANS AND OF THE RECTUM.

Ischuria was studied with great assiduity by Desault, whose classic essays (*Jour. de Chir.*, i, ii) Richter transferred in part verbatim to his "Elementary Principles." They distinguished: 1. Paralytic retention of the urine, which appeared chiefly in old people, and from that arose the fact that the bladder lost the power of contracting. It might also be the result of venereal excesses, onanism and spinal injuries. External stimulants (Spanish flies, arnica and cold applications on the perineum) were valued, especially the continued use of the catheter to empty the urine. It seemed best to retain flexible catheters, stop up their openings and allow the urine to flow out every three hours; then about every sixth day to take them out and clean them. In case of a long continuance of the trouble it was advised that the patient learn to catheterize himself. 2. Inflammatory ischuria implied the inflammation of the neck of the bladder, the urethra or the rectum. It arises from stone, hemorrhoids, rectal fistula, contusion of the perineum, rheumatism and most frequently in a so-

called obstructed gonorrhea. For this they used antiphlogistic remedies (calomel with opium), warm baths, poultices applied locally; after these the catheter, which, however, must not be left in place; in the worst event, puncture of the bladder. 3. Spasmodic retention of the urine, which had its seat in the neck of the bladder and was treated with antispasmodic remedies. 4. That from the obstruction of the urethra in consequence of foreign bodies. For the extraction of these J. Hunter devised the best adapted instrument consisting of a small tube, out of which two arms, spreading by means of a spring, were pushed forward. Desault also invented tweezers, almost like this, only they were larger and curved like a catheter. If extraction failed then nothing was left but to cut open the urethra. A wound in it healed readily if the urine were kept from it by a catheter. 5. Suppression of urine by strictures of the urethra. These were mostly in front of and near the bulbus, but might occur in several places. The causes were regarded as mostly "venereal inflammations of gonorrhea," until J. Hunter, in an accurate work on stricture, showed that it was not the fault of a special poison, but that constrictions might arise after any inflammation in the urethra. He divided them into permanent, which depended upon an organic defect, and spasmodic and mixed. The treatment was with bougies, "one of the most important inventions of recent surgery" (Richter), to which Hunter and Desault turned their full attention. The best bougies consisted of linen which was dipped in a mixture of wax, olive oil and minium, smooth and pliant; they did not break easily and were preferred to the usual wax bougie. Besides there were a countless number of compositions for the preparation of bougies. Catgut was also used; it had the advantage not only in distending the stricture but also in softening it, but was often hard to insert, caused severe pain and was easily worn out. Lead wire was also difficult to introduce and painful and easily took a wrong course. The patients soon became accustomed to the bougies, which were at first borne only a quarter of an hour, so that each day they were pressed in farther. From their premature use an abscess might arise at the stricture which either should not be opened at all or as late as possible (Desault); they might also take a false course. Perfect cure was seldom reported before three or four months and a relapse was not infrequent. If the treatment with bougies failed then Hunter recommended corrosives; he touched the stricture with a small piece of nitrate of silver every day or two until the probe pressed into the bladder. Desault regarded this treatment as uncertain and dangerous and never ventured to use corrosives. Richter also considered it unnecessary in most cases, since the bougie would finally press through. For abnormal duplicatures running clear through the urethra both surgeons recommended a turning of the catheter on its axis, but considered the so-called bougies médicamenteuses to no purpose in suppression of the urine. 6. There was an ischuria in consequence of swelling of the prostate occasioned by inflammation, abscess, stone, varices or scirrhus of the gland. If the dispersion of the inflammation was not quick enough the application of a catheter with a considerably bent point was necessary. But rather than apply force in such a case it was said to be better to decide upon a puncture of the bladder. The abscess lying at the surface of the prostate for the most part breaks spontaneously or the catheter opens it; situated between the gland and the rectum it was to be reached through the latter. If it opened into the bladder or urethra they left the catheter in position and injected a thinned barley water in order to wash out the pus. If they felt stony concretions in the prostate, which was, however, very difficult, an incision was made in from the perineum. In case of varicose swellings of the vessels of the gland catgut was the best. The most frequent tumor of the prostate was the scirrhous induration, as it occurred for the most part in old people who had had gonorrhea in their youth (Richter). For this they used thin silver catheters, rubbing with mercury salve, a seton in the perineum (Hunter) and as a last resort the boutonnière. This operation, the technique of which resembled that of today, found many opponents, among them Desault, who considered it for the most part superfluous and declared that it had, with right, sunk almost entirely into oblivion. Besides these main groups of ischuria, Desault described one which originated in the ureter as foreign bodies, inflammation, swelling or ulcers which compressed it. Since these causes were for the most part only discolored after death, art could do but little; further, the surgeon recognized suppression of urine as a result of retroversion of the uterus, prolapsus of the uterus and of the rectum and pregnancy.

In the most urgent cases of ischuria one must have recourse to puncture of the bladder. This operation in itself without danger, surgeons at that time employed much more frequently than at present, because they overcame the obstructions in strictures with greater difficulty and did not appreciate the uses of the boutonnière. Desault was a notable exception; to him cystotomy was so rarely indicated that in the Hôtel Dieu he found occasion to use it only once since the introduction of the catheter by a skilled surgeon must almost always be successful. They punctured the bladder from the perineum, above the pubes or through the rectum. The first, and at the same time the oldest method, was the most uncertain and the most dangerous and was almost entirely discarded. Only B. Bell advocated this operation, which Theden very often saw result fatally. The puncture above the pubes, probably first made by Méry in 1701, was regarded as easy and not very painful. It was almost impossible in that way to miss the bladder and injure an important part. The danger that the bladder in its evacuation would draw back from the tube of the trocar and an infiltration of urine follow, was obviated by the use of the long, somewhat curved trocar of Frère Cosme. Otherwise inflammation soon entered the wound, whereupon the cicatrization of the bladder with the abdominal muscles was occasioned and its contraction prevented. After a few days an elastic tube could be inserted. This puncture was absolutely necessary in swelling of the prostate, but was contraindicated in case of very fleshy persons. Recommended by Sharp and Heister it was regarded as the best method (Turner and Brown) even when the puncture through the rectum had been established. This was a discovery of Flurant. This operation, simple of itself, possessed the single danger of injury to the seminal vesicles. These were avoided, however, if the curved trocar devised by Flurant was inserted as deeply as possible into the rectum and the bladder perforated as high as possible and exactly in the middle. The tube which was left in the rectum naturally caused discomfort. In affections of the rectum and

the prostate bladder puncture was just as little possible as for women, in whose case the vagina was punctured with success (Bell). Flurant's method was made known by Pouteau (1750), was introduced into Germany chiefly by Schmucker, and much later in England by Reid (1778). Reid indeed preferred it to the use of the catheter, whose unskilful application was much more dangerous. Soon it displaced the puncture above the pubes; Richter even called it the best, most comfortable, easiest and safest method. J. Hunter, Desault and Theden recommended it, while B. Bell rejected it entirely.

Desault traced *hematuria* either to the kidneys (stones and unnatural relaxation of the renal vessels) or to diseases of the bladder (varicose swelling of the vessels, fungous excrescences, stones and wounds). The inhabitants of tropical countries were especially liable to hematuria; Desault cured many soldiers who came back from the East Indies, by the use of the elastic catheter.

Renal calculi became the subject of surgical treatment as soon as the abscess produced by them formed an undulating tumor in the lumbar region. This constituted the indication for *nephrotomy, i. e.*, for the opening of the abscess and the extraction of the stone. This operation had already been recommended in a work of Hippocrates. Therein is stated that if pus has been formed in the kidneys, this must be removed with the gravel; then there was hope of saving the patient. If the diagnosis was certain an opening not too small must be made as early as possible, the finger introduced and the stone, if free, removed; fixed stones were allowed to be released by nature and for that purpose the hole was kept open by means of a pledget. The operation was first performed as it appears, by Marchettis (1696) on an English consul, for an abscess in the lumbar region, and it was warmly advocated by Rousset and Riotan, and then by Heister. He supported his position upon the fact that "renal wounds, if they are inflicted from behind and do not enter into the ventral cavity, are not always to be regarded as fatal." Later, Hevin, Troja and Earle commended it and C. C. von Siebold exclaimed emphatically: "When will the men who are so courageous and fortunate in the preservation of mankind in the exercise of the arts of surgery, again address themselves to the renal incision in order to remove the deadly stones from the kidneys as well as from the bladder?" It was a question whether the operation should also be undertaken in case an abscess was not present. Although one successful result was known ("Philosoph. transact.," 1696, art. ii, p. 188), they advised against it on account of the uncertain diagnosis, and because the soft parts lie too close, moreover an excessive hemorrhage was to be feared; it was difficult to find the stone and dangerous to loosen it with the knife if it was wedged in tightly (Richter, B. Bell). Only Lafitte considered nephrotomy also indicated, when there being no abscess, the stone could be recognized as a tumor by its hardness. *The extirpation of the kidneys* became a subject of discussion through an observation of the Englishman Fearon ("Med. communic.," i, London, 1784). He diagnosed a large tumor of the kidneys and had an inclination to extirpate it; the patient died. Then he performed the operation on the cadaver; without injuring the peritoneum he took out a kidney weighing two pounds and said that one could extirpate a diseased kidney if it forms a tumor on the outside. But Richter objected that in case of a living body hemorrhage and other evil consequences must be considered, and one must also have assurance that the other kidney is healthy and able to secrete the urine.

The study of diseases of the testicles languished; they were often confused. Monro, Sharp, Garengeot, and Pott, in particular, won credit for themselves in respect to these ailments. Surgeons showed an active interest in hydrocele, the treatment of which was enriched by many improvements. Only little by little were clear views obtained as to the seat of the infiltration of water. Garengeot distinguished accurately infiltration into the spermatic cord from that into the vaginal tunic, while Sharp rejected the finer distinctions as to its seat and only distinguished hydrocele of the tunica vaginalis from hydropsy of the scrotum. According to Heister, the water lay for the most part in the tunica vaginalis, sometimes in the proc. peritonei, and exuded from the "ruptured lymphatic vessels (vasa lymphatica)." Congenital hydrocele was also known to him. With anatomic accuracy, Pott distinguished the various seats of the disease, described hydr. of the tunica vag., hydr. cystica and that in the tunica vaginalis of the spermatic cord. To these three kinds Richter added hydrops scroti and infiltration of water into a hernial sac.

For *hydrocele* of the tunica vaginalis, the oval form, fluctuation, position of the testicle behind the tumor, etc., served for diagnosis; the transparency seemed uncertain, since the scrotum might be very thick and the water turbid (Sharp). A contusion, induration and inflammation of the testicle, cold and syphilis were considered the most frequent causes. A dispersion of the tumor by means of medication offered a prospect of success only in the case of children. In such cases cures were accomplished by purgatives and emetics, poultices of an infusion of rosemary or sage in wine or brandy, the application of compresses which were wet with vinegar, or a solution of sal ammoniac in alcohol. With the last mentioned remedy the English military surgeon, Keate (1788) would for the most part dispense with the operation. In the case of new-born children, Monro applied a piece of flannel saturated with smoke of benzoin, and Heister had a healthy person chew a piece of nutmeg and then blow frequently upon the scrotum. The operation was palliative or radical. While for Sharp, the former always sufficed, and the radical operation appeared too dangerous, Richter preferred the palliative operation only in very large hydrocele, in case of doubt as to whether the testicle was diseased and in complications with other diseases of the testicles. If one had assured himself of the position of the testicle, a lancet, or better, a trocar was inserted below and in front, and the water allowed to escape, but not all at once. The lancet should have the preference in case of slight infiltration of water in complications with hernia and sarcocele. In such cases they severed the skin and then inserted the trocar into the exposed tunica vaginalis (B. Bell). J. L. Petit first called attention to the evil consequences of perforating a blood vessel in the spermatic cord.

In the radical operation it was necessary to destroy the cavity of the tunica vaginalis, since they either cut this out or induced inflammation in it in order to bring about an adhesion with the testicle. To that end there were a number of methods, of which Richter asserted that each deserved preference in certain cases, no one of them in all cases. For most cases of

hydrocele the incision was regarded as the best method. The tunica vaginalis was split throughout its whole length to the base of the scrotum (Monro) and a pledget, or a piece of fine linen spread with digestive salve, introduced. Filling with lint (Lassus) occasioned too great pain. Although the incision was decried from many sides as dangerous (Wiseman, Cheselden and Earle), which Pott, however, denied, and although suppuration of the testicle (Sharp) and a fatal result (Acrel and Monro) were noted, still these methods were for the most part in use at the end of the century. If critical conditions ensued Richter laid the blame on the surgeon; he and also B. Bell defended the incision against all other methods. If the tunica vaginalis was unnaturally thick and hard, its extirpation, already known to the ancients, had given good results. Douglas reintroduced it (1755); Saviard, White, Gooch and Louis followed him. Not infrequently the results in this way were less serious than in a simple splitting of the tunica vaginalis (Bertrandi). A third method, taken up by Warner (1774) and Theden, was the insertion of a tent, which was daily renewed and allowed to remain until sufficient inflammation was induced. It was unsafe and irritated the testicles more than the tunica vaginalis. The injection of irritating fluids found many advocates. It appears to have been first done by the Marseilles surgeon Lambert (Œuvr. chir. 3. Ausg. 1677); he used a solution of sublimate in lime water. The method appears to have been long forgotten until Monro appears to have reintroduced it and first injected alcohol and afterward wine. Alcohol was a deceptive remedy; when Sharp had injected an ounce of it an abscess on the scrotum resulted. Sabatier cautioned against it and used the weaker red wine. Solutions of nitrate of silver, alum, vitriol, sugar of lead, lime water and simple cold water were also used. The liquid was allowed to flow out again immediately, and care was taken that nothing remained; the quantity depended upon the size of the tumor. Voices were raised for and against injections. Richter considered them not safe enough, since B. Bell had reported one failure in nine cases, and brought forward as a disadvantage, that sometimes very severe inflammation and suppuration resulted; he limited them, therefore, to simple, slight hydrocele. Many experiments were made in France and their results reported; fewer, in England. Earle (1791) defended this method, and said in its favor that it induced only very slight inflammation which never led to suppuration, hence could be used for every constitution and at all ages. It also has neither obstacles nor dangers, and in case of relapse can be immediately repeated. He used port wine with a decoction of rose leaves (2 to 1) and described twenty-seven cases. He successfully treated large nodules and mucous sacs at the patella with the same injections. Desault also preferred the injection for congenital hydrocele. By means of a cushion he lifted up the communication between the abdominal cavity and the tunica vaginalis, punctured it and injected red wine, and had the patient wear a truss that the peritoneum might not enter the lacerated tunica vaginalis. Hydrocele, sometimes also hernia, which was usually complicated with it, was radically cured by the occurrence of adhesions in the cavity. Zenker appears to have introduced the Earle injections into Germany; at least he made them, with success, of equal parts of water and medoc, in the Berlin Charité in January, 1795. The method was later forgotten there, for Rust and Gräfe operated with the incision. Pott valued and preferred to the incision, as one of the most excellent remedies, the seton, which Lanfranci first used and Paré among others had recommended. He used it many years with successful results, at first in the form of a wick of cotton, later of sewing silk, which irritated less. Pott asserted that by this method the tunica vag., simply affected with inflammation, adhered to the testicles, but suppuration never ensued. Even in his lifetime the general voice was raised against the seton; Sabatier first interested himself in it again. The technique of the operation was considered too inconvenient and excessive suppurations and aggravated conditions were observed to follow (B. Bell, Earle and Richter). Cauterization, by which the ancients opened the tunica vaginalis in its entire length, was introduced through Else, a surgeon in the Thomas Hospital in London (1770) and Dussaussoy in Lyons (1787), but only for the purpose of inflaming the tunica vaginalis. A paste of lapis causticus was selected and with it a scab the size of a louis d'or was made, opium also being applied (Acrel). The pain and subsequent suppuration restrained many surgeons from cauterization.

Under "cystic hydrocele" (hydr. cystica) was understood the tumor which occurs especially in children and consists of an unnatural sac in the cellular tissue of the scrotum, for the most part in the region of the middle of the spermatic cord. Below and above it the latter could be freely felt. Resolvents did not suffice, but a simple puncture or, in adults, the splitting and excision of the sac led to a cure. From this species, "hydrocele of the tunica vaginalis of the spermatic cord" was distinguished. In the latter the water collected in the cellular tissue which immediately surrounds the spermatic cord; wherefore the tumor was also called edema of the spermatic cord. This rarest form could either attack only the lower part of the spermatic cord and extend as far as the abdominal ring, or it entirely filled with water the cellular tissue which passes with the spermatic cord through the abdominal ring. They opened the tumor.

Diseases of the testicles were so little the subject of anatomic investigations that under *hematocele*, which name originated with Heister, was understood an infusion of blood into the cellular tissue of the scrotum and the tunica vaginalis, as well as into the substance of the testicle. The second form developed after the palliative operation for the common hydrocele if a large blood vessel was punctured, or after a contusion. They sought to resolve small tumors by purgatives, solutions of sal ammoniac and by external pressure by means of a suspensory; larger ones were lanced or cut out. In the third form, which Pott discovered, the testicle was swollen and so soft that it could be pressed flat without pain; thin chocolate-colored blood was exuded into its substance. Castration was here the only remedy, although for years the swelling often occasioned only slight inconvenience.

Under *sarcocele* was understood an induration and swelling of the testicle, and all neoplasms of the same were classified in the following manner: If the tumor was painless, it was regarded as benign scirrhus; if painful, as malignant and latent cancer; if ulcerated, as open cancer; sarcocele arose after contusion from venereal, scrofulous and gouty causes, among others. In regard to its treatment, J. L. Petit was the first who demonstrated the possibilty of a cure of a syphi-

litic testicle tumor by anti-syphilitic remedies. Naturally they then sought to contend against other dyscrasias by corresponding medication. Yet *castration* remained the surest remedy, to Sharp one of the saddest operations and one which was allowed only in scirrhus and cancer of the testicle, which was very liable to relapse. He postponed the operation until the tumor threatened to become malignant, while most surgeons would castrate as soon as possible after pains arose, since one could never know whether or how long the swelling would remain benign. Only when the pain was no longer local and the spermatic cord and inguinal glands were also indurated they advised against the operation. Volumes have been written on the technique of castration, since there were few operations which in the last century were so variously modified. As a rule a large longitudinal incision was made from the abdominal ring to the base of the scrotum, or only a small incision above the spermatic cord, in order to expose the latter, and the incision was further enlarged (le Dran and Monro.) Then the spermatic cord was isolated from the cellular tissue, bound and severed, whereupon finally the testicle was removed. The oldest method was to bind the entire spermatic cord. In Heister's time they applied a simple or double ligature around the vasa spermatica close to the abdomen before they cut off the testicle. A few surgeons loosened the testicle from the scrotum after applying the ligature, but waited a few days until it began to putrefy in order to be able to separate it so much the more safely. The stricture of the entire spermatic cord had a few successful results (Sharp, Morand, Acrel, Pott and Schmucker; Mursinna thus performed sixty-four castrations and observed trismus arise only twice). But severe pains (Bell) were observed and trismus with fatal results (Morand), convulsions (Bilguer), and epilepsy (Theden). Views upon this kind of operation were widely diverse. J. L. Petit rejected the ligature of the spermatic cord entirely, since the hemorrhage from the small arteries was only slight, and preferred the isolated torsion of the vessel, and le Dran and White did not bind the spermatic cord but only rolled it between the fingers. A few would draw the thread only tight enough to close the artery (Bell and Lassus); others bound the artery alone (Monro, Cheselden, Z. Vogel and C. C. von Siebold). Richter laid down the following rule: If the spermatic cord must be cut off close to the abdominal ring one should bind the whole mass with a thread not too thick; if it is to be separated far below the abdominal ring one should endeavor to bind the artery alone. It was always advisable to cut the spermatic cord as far down as possible because it contracted so much. Since many accidents might arise from the straining of the spermatic cord importance was attached to freeing it as far as possible from the surrounding parts so that it could contract unhindered (Maréchal). Most surgeons arrested the hemorrhage by ligature, while Theden recommended the tampon, on account of epileptic attacks. Of course in case of very small arteries it was often possible to stop the blood by continued finger pressure, but it might be a question of a vessel of the size of the art. brachialis (Sharp), and a dangerous hemorrhage might arise after compression alone (Pott). They advised attempting a healing by prima intentio. A radical method of castration, as that of the Austrian surgeon Zeller, was not to be thought of. Proceeding from the idea that the extirpation of the testicle at the base of the scrotum accomplished nothing, he seized the diseased part along with the testicle, drew them backward and severed sac and testicle at once; the hemorrhage was stopped with ice-cold water.

In *varicocele* they distinguished cirsocele as varicosity of the spermatic cord and testicle, from varicocele, as an enlargement of the veins of the scrotum. Richter believed that the tumor was not based upon a varicose swelling of the vessels of the spermatic cord alone, but that the spermatic vessels in the epididymis and the testicle also swelled. The feeling as of a bunch of angleworms could not be derived from distended veins, and the eventual atrophy of the testicle could only be explained in that way. J. L. Petit said that a predisposition to the development of varicocele was to be found in the mechanical condition, that the vessels of the spermatic cord ran upward over the os pubis as the cable of a well across the roll, and that the testicle works as the bucket of the well. They named as causes, a torpidity of the spermatic vessels (in onanism), an increased afflux of liquids (in suppression of coitus), contusion, obstructed reflux of the fluids (bad truss). The disease could never be entirely removed, but an exacerbation could be prevented. The continuous wearing of a suspensory, cold lotions, the application of alum solutions and of naphtha served to that end. In case of very severe pain, or threatened rupture, one should castrate (Gooch). The stricture of the veins, according to Celsus, as well as the puncture of the vessel with a lancette, according to Heister, and the extirpation of the varicose veins, were regarded as too dangerous. In case of healthy testicles, Pott rejected every operation. Observations as to cryptorchism were made as early as the seventeenth century. Petri de Marchettis[1] found in a child one testicle "near the pudendum," the other in the scrotum, and advised against any treatment, when a colleague would bring the supposed tumor to suppuration ("Chir. Obs.," lviii, Uebers., Nürnberg, 1673). Felix Plater described three cases and the confusion with hernia ("Obs. Sel. Obs.," 47, 1680). Pott offered new observations. He was aware that it was subject to all the diseases of the testicles, and that it might be regarded as a rupture, and could become inflamed through pressure of a truss, and from an injury. He observed it grew scirrhous and cancerous, and also described the successful extirpation of a cancer. Plenk likewise called attention to the distinction between inguinal hernia and bubo, and taught that cryptorchism with defective treatment might inflame, suppurate, harden and develop into inflammation or cancer.

Richter considered the operation for *phimosis* as inadvisable, in case urination was not obstructed "until the patient wished to fit himself to undertake coition, for which purpose, as C. C. von Siebold relates, young Frenchmen had the frenulum cut. A few surgeons preferred circumcision to a simple splitting, because after the latter misformed flaps remained obstructing coition (Richter); others preferred the simple incision and limited circumcision to a thick and hard prepuce (Sharp). The latter was made with bistoury or shears, the longitudinal section with a bistouri caché, with which the strongly contracted foreskin was perforated above in the middle and from

[1] This surgeon is today so little known that several of our recent handbooks relate the story of how Marchettis had extracted a pig's tail which Göttingen students had stuck into the anus of a Jewish girl. Marchettis died in 1678 and the University of Göttingen was founded in 1734.

within outward, and was cut through from the back, forward. Then the flaps at the sides of the incision were cut off, since they often occasion much trouble. At each bandaging a pledget was pushed into the upper corner of the incision; it was not sutured. A number of bistouries with the most widely differing pointed covers were constructed for this operation (Petit, B. Bell, Bertrandi, Lotta and others). The incision was also made at the side of the gland (B. Bell and Arnemann) or only the inner layer of the foreskin was cut, as almost the only place of contraction (Foot).

(To be continued.)

SOCIETY PROCEEDINGS.

Chicago Ophthalmological and Otological Society.

Regular meeting held Nov. 9, 1897, in the Stewart Building.

Dr. MONTGOMERY in the chair.

There were twenty six members and visitors in attendance. The minutes of the last meeting were read and approved. Drs. A. E. Bulson, Jr., of Fort Wayne, Ind.; E. A. Lawbaugh of Chicago, and J. B. Taylor of Bloomington, Ill., were elected members.

Dr. PIERCE opened the discussion on "Chronic Suppurative Otitis Media." He said that a proper comprehension of the factors involved in the treatment of chronic suppuration in the middle ear may best be arrived at by briefly considering: 1, the pathologic processes which induce suppuration in the tympanic cavity, comprising the micro-organisms involved; 2, routes of invasion, and 3, the conditions which prevent their escape or destruction. These three points were discussed seriatim. In considering the treatment he had come to believe from experience that many cases of catarrhal inflammation assume a suppurative or chronic form because of ill-advised treatment. One of the most prevalent errors in this regard is the empiric and illogic use of ear drops, douches and inflations. The author showed that this was bad treatment. The first condition to be met in chronic, as well as acute otitis media, whether suppurative or catarrhal in form, is drainage. There is no other factor which tends to perpetuate a suppurative ear disease so frequently as lack of drainage or retention of discharge. At his clinics he rarely uses injections. The ears are cleansed by carefully swabbing away secretion by means of sterilized cotton pledgets. These pledgets are kept constantly on hand. The external auditory canal is then packed with a strip of sterilized gauze, care being taken that it barely touches the membrane.

With reference to douching the author said there are a few cases which demand irrigation, and in these the ear is cleansed through the Eustachian tube whenever possible. When the affection is bilateral he uses Greuber's method. A syringe with a blunt point holding two ounces is introduced into the nostril. The other nostril is closed by the thumb as in politzerization. The patient is told to blow out the cheeks forcibly when the contents of the syringe is forcibly ejected. In this way the solution is forced through the Eustachian tube into the middle ear through the perforations into the external auditory canal.

Surgical treatment.—When the discharge continues after a month's treatment by the method described, the author resorts to operative interference, providing there is no indication of polypous formation or caries. In the case of a polypus being present he snares it away immediately, or in the case of opposition to surgical interference on the part of the patient, he reduces it by means of sesquichlorid of iron or alcohol. In his hands syringing of the attic by means of Hartmann's canula has proven unsatisfactory in almost all cases.

The author then touched on a few practical points that had been impressed upon him by his own experience. As regards narcosis, chloroform or a general anesthetic should always be used in those cases where any considerable amount of the membrane remains, for here the pain is usually intense during the operation, and hemorrhage from the granulation is very likely to delay manipulation. Cocain may be relied on in those cases where the tympanic membrane is largely destroyed and where granulation tissue is nearly altogether absent. The attic can be best cleaned by the attic scoop. The after treatment should be the same as that pursued before operation, namely, packing with gauze drains. He had seen cases that have run along for twelve years or more in which suppuration ceased in two months after the operation.

Dr. EDWARD T. DICKERMAN referred to the varying susceptibility of different patients to middle ear disease, and attached importance to the condition of the nasopharynx in these cases. He had found that in cases where the Eustachian tube was blocked by nasal growths that ear disease was far more common. Regarding treatment he agreed with Dr Pierce that the dry method was by far the best, and he believed that acute cases would never become chronic if properly treated. The bone which most often necroses is the incus, because the blood supply is entirely from one small artery which is easily occluded, any slight pressure from swelling being sufficient. In these cases of necrosis a thorough curetting is absolutely essential and due care must be had for the facial nerve, which is easily injured by instruments or any escharotics. He had found that the improvement in hearing in most of the cases was marked.

Dr. HENRY GRADLE—A fair experience has shown me that the gauze drainage advocated by Dr. Pierce is the speediest treatment at present known in acute inflammation of the middle ear, but I have never used it as yet in the chronic form. In discussing the treatment of chronic suppuration of the middle ear, I wish to emphasize certain principles which I fear are not yet appreciated by all practitioners. In general surgery it is well known that the tissues will invariably recover from pyogenic infection if the pus can escape freely, and there are no untoward conditions present, as for instance, foreign bodies. The same is true of inflammation of the middle ear. For anatomic reasons there is, however, much liability to the damming up of the pus with consequent persistence of suppuration. The reasons are partly obliquity of the meatus, partly the complex architecture of the tympanic cavity, the liability to the formation of occluded crevices by swelling of the mucous membrane or granulation tissue, and particularly the partial occlusion of the attic by adhesions and newly formed bands of tissue. All these conditions interfere with free drainage of the pus, and thereby favor secondary infection with putrefactive bacteria from the meatus. Inspissated pus moreover acts as a foreign body and thus maintains continued suppuration.

A valuable sign of retention of pus in the cavities of the middle ear is its odor. Freely escaping pus has no fetid smell, while a foul odor indicates imperfect drainage. We can make use of this important criterion to test the efficacy of treatment. On the basis of much observation of such cases, I can state emphatically that any treatment which does not remove the odor will never lead to a cure of chronic purulent otitis, and that, conversely, whenever the odor has been removed the tendency to recovery can be at once observed. A small number of cases may not entirely heal under the treatment which removes the odor, but this is a rare exception. On the other hand, the first principle stated has no exception whatsoever.

My treatment always begins with the free use of the syringe. A fine nozzle protected by a bit of soft drainage tube must be carried far into the meatus. Thorough syringing alone cures many cases. I can say this on the basis of some cures accomplished by syringing followed by the experimental use of various powers like iodoform, which I since learned to be absolutely inert. But syringing will not cure all cases, nor is it the speediest form of treatment when employed alone. All uncomplicated cases of purulent otitis will heal under the use of boric acid lightly insufflated after thorough cleansing. In a small percentage of instances a single insufflation has resulted in a permanent cure. If the cure is delayed there are complicating conditions present which we must inquire into, and these do not yield any more readily to the various substitutes recommended for boric acid. What we wish to accomplish by insufflation is to put into the ear a depot of a non irritating antiseptic which checks bacterial activity on the surface of the tissues. Boric acid answers these requirements so fully that I can see no reason for any search for substitutes for it. The addition of any antiseptic fluid to the water used for syringing appears unnecessary to any one familiar with surgical pathology, and many trials in former years have convinced me of the utter uselessness of all fluid antiseptics (including peroxid of hydrogen). Insufflation through the Eustachian tube I formerly used as a routine measure, but I have failed to see the least delay from its omission.

If these measures do not remove the odor after one or two treatments, other means must be adopted. Irrigation through the Eustachian canal has not proved of any use in my hands for the purpose of removing pent-up secretion of inspissated pus. I have learned to regard, however, as very valuable, irrigation of the tympanic cavity and attic through the intratympanic canula. Hartmann's rubber tube is too thick. I use a silver tube, closed at the end, with lateral eye attached to a ten centimeter piston syringe. Its efficacy is shown in

suitable cases by the appearance of grumous pus collections in the basin, and the disappearance of the odor. It is often painful to the patient, but I have never seen any harm done by its use. Intolerance of the patient may require a repetition of its use at different sittings until all odor is removed. In some instances, in which no complicating lesions existed, but where the intratympanic canula failed to dislodge the retained pus, I have made use of fluids capable of penetrating better into the small crevices than water on account of their lowered surface tension. I use first a solution of salicylic acid in alcohol and ether, and follow this by carbolated glycerin 1 to 10. A number of times my reasons for the employment of these solutions were justified by the subsequent disappearance of the odor and the progress of the case. I have also made attempts to dissolve carious bone by baths of hydrochloric acid (5 per cent.), and to digest obstructing granulation tissue by acid pepsin solutions, but am not convinced that I have ever accomplished anything thereby. If these modes of treatment fail to remove the odor, we must attack surgically those conditions which interfere. Polypi must be removed, although small ones may sometimes disappear by absorption under such treatment without delaying the cure. Visible granulation tissue is to be curetted. Carious bone must be cleansed by the curette of adherent fragments of tissue; but when cleaned it does not interfere with recovery, as I have learned repeatedly. Small openings in the membrana tympani, or in Shrapnell's membrane, may be enlarged, although I have but rarely seen any benefit from this procedure. When persistence of the odor indicates the inefficiency of the treatment, I attempt to clear out, with the snare and curette, the entire tympanic cavity, removing as much as possible of the ossicles, so as to expose the attic freely. I have, however, not concluded to do a simple Stacke operation, for the reason that Stacke himself found that in most cases requiring this operation, the mastoid also is involved. Whenever, therefore, I find that I can accomplish nothing by the minor surgical measures, I perform the Zaufal operation, and convert the antrum, tympanic cavity, attic and meatus into one cavity. Of all complications, the most important is the existence of cholesteatoma. If with this condition, the odor can not be removed, a radical operation is required. If the deodorization can be accomplished the cases generally heal, and may stay cured for months or years, but relapses rarely fail to set in.

As a rule, otorrhea diminishes steadily until cured, after the odor has been removed. There are, however, a few rare cases where many months may be required for this result. Generally the treatment will not extend over a longer period than four to six weeks at most.

There are some cases in which no odor is present when first seen and which still prove very rebellious to treatment. They are characterized by a very profuse, stringy, muco-purulent secretion which presumably comes from the mastoid antrum. In instances of this kind in which there are no indications for naso pharyngeal treatment, I have often found it possible to influence the secretion very markedly by the use of tannin dissolved in glycerin, 1 in 4, retained in the ear for hours. Repeated trials have shown me the efficacy of this treatment under these conditions, but it is not infallible. Some of these cases with profuse, stringy secretion occur in children with a similar profuse chronic purulent rhinitis. This disease has been described by Bosworth as a special type occurring in children, and I can confirm his description fully, but must differ radically from him regarding its ultimate outcome. He considers it the first stage of ozena. I can not admit this at all, as I have watched some of these children for months, partly after the efficacious treatment, partly after treatment insufficient on account of frequent interruptions. Moreover, a few cases of ozena which I and others have been able to catch in their incipiency began in an entirely different manner. This chronic purulent rhinitis of children can be cured by the persistent use of the nasal douche kept up for many months. The same irrigation extended into the Eustachian tube, will also cure the corresponding form of middle ear disease. When both ears are involved it is easy to use the Politzer bag, filled with saline solution, instead of air. When the disease is one-sided the more cumbersome Eustachian catheter must be employed. With such irrigation boric acid insufflations must be combined.

It may not be amiss to add that hypertrophy of the pharyngeal tonsil is not only a frequent cause of inflammation of the middle ear, but accounts also for many relapses observed in childhood, and that in every case of chronic otitic suppuration we must attempt to restore a normal condition of the nose and pharynx.

Dr. TILLEY is a firm believer in syringing in these cases and thought it of more value than the dry method of treatment. He uses a bulb syringe similar to the one used by dentists, and injects the fluid into the tympanic cavity. He finds a solution of carbonate of soda most valuable for syringing. He considers constitutional measures of the greatest importance and uses the solid iodid of iron and cod liver oil in nearly all his cases. The nasal condition is also carefully looked after.

Dr. WHEELOCK agreed with Dr. Gradle that the odor of the discharge is a good index to the condition of the ear. He syringes most of his cases with peroxid of hydrogen, allowing it to remain in the ear for some minutes. Where granulations are present he finds that they can be most comfortably removed with absolute alcohol. He has been recently trying a 0.5 per cent. solution of formalin instead of the peroxid, and finds it very satisfactory. It seems to have a more penetrating effect than any other solution. Patients are instructed to syringe the ear with at least two quarts of hot water, at home, by means of a fountain syringe held a few inches above the level of the head.

Dr. COLBURN uses peroxid quite frequently, but called attention to the dangers of using it in cases with perforations because of the pressure exerted by the gas in the middle ear.

Dr. COLEMAN also uses peroxid freely. For some time recently he has been using the Politzer method of inflation in combination with cleansing the ear and considers it very satisfactory. He does not think there is any danger of reinfecting the ear from such treatment. When granulations are present he destroys them with chromic acid.

C. P. PINCKARD, M.D., *Secretary.*

The Eighth Italian Congress of Internal Medicine

Naples, October 20 to 24,

was opened by Prof. G. Bacelli, who urged further work in the line of the intravenous administration of heroic medicines, "first practiced in Italy, but now finding adherents all over Europe and in far America." Quinin was the first thus introduced into the system, and many a patient in the preagonic stage was saved by it. Then bichlorid of mercury was tried and afforded marvelous results, not only in syphilis of the brain and spine, but even in the gravest disturbances from pathogenic micro-organisms and their toxic products, especially influenza. Then iron was attempted and other substances will certainly follow, although the endovenous method is obviously for exceptional use.

Prof. E. Maragliano described the important information to be learned with the Roentgen ray in regard to the thoracic organs, especially in incipient disease.

In his address on "Leukemia," Professor De Renzi went over much of the ground covered by the work of the Chicago Pathological Society (*vide* JOURNAL, Vol. XXIV, Nos. 4 and 25; also "Leucocytosis," Vol. XXIX, No. 10, and editorial in Vol. XXVIII, No. 20). He stated in conclusion that leukemia is not a morbid entity, but a symptom connected with physiologic and pathologic leucocytosis. Two factors are necessary, the inciting agent and a predisposition on the part of the organism. Given this predisposition to the exaggerated production of leucocytes, several micro organisms are capable of acting as the determining factor, hence the variety of types of leukemia, but an extremely susceptible nervous organization is common to all. Pasteur and others have found the staph. pyog. aur. and alb. and the bac. coli in leukemia, but Pane in his recent extensive research failed to discover any micro organism, even with inoculations of dogs and monkeys. De Renzi has observed typical anemia infantum pseudoleukemica in adults; it is an actual scourge at Barano d'Ischia. At present much importance is attributed to the neutrophile mononuclear leucocytes, but this importance is still dubious. Pane considers the granules of the polynuclear leucocytes physiologic, as an aqueous instead of a glycerin solution of eosin renders them acidophile. The existence of intermediate forms between the eosinophile and neutrophile granules precludes any deductions from them, and it is better to depend for the diagnosis upon the permanent multiplication of the white corpuscles and the hyperplasia of the hematopoietic organs. The theory of increased activity on the part of the cytogenic tissue (Virchow, Bizzozero), is confirmed by this hyperplasia of the hematopoietic organs, also by the abundant destruction of the leucocytes in the organic transformations, especially since Hurbaczewsky has succeeded in differentiating the albumin from the nuclein transformations, the first producing oxyproteic acid and urea, the latter uric acid. Recze found an increase of five to eight times as much as normal in his cases, and when uric acid could not be found, it was substituted by xanthin, hypoxanthin, Rovida's hyaline substance and Lilienfeld's nucleo. The erythrocytes are affected in leukemia, showing degeneration either as poiki-

locytosis or in the endoglobular changes described by Maragliano. Fever may or may not be present; it has no special characteristics. There is no prompt and radical cure for leukemia, but arsenic may prove beneficial; organotherapy promises still better results, and possibly Tesla's currents, which promote to a remarkable extent the organic oxidations without increasing the consumption of albumin.

Marchiafava considers leukemia and pseudoleukemia distinct affections, the latter a secondary infection favored by profound anemia. In the ganglion and intestinal variety the spontaneous increasing and decreasing in size of the ganglion tumefactions is still an inexplicable phenomenon. The internal ganglia may be the first affected; in the thorax it is the mediastinal and peribronchial ganglia, the process extending to the lungs or pleura. In the abdomen it is the mesenteric or retroperitoneal, or both. When the lymphoma invades the walls aneurysmatic dilatations are noted, while cancer and tuberculosis produce stenosis. The importance of the splenic tumefaction in splenic anemia, which must not be confounded with splenic pseudoleukemia, is evidenced by the complete recovery after extirpation of the spleen, in the early stages. Arsenic is still the most effective treatment of pseudoleukemia. Surgical treatment of the ganglion tumors is not to be advised. Bozzolo reported a case in which these tumors disappeared spontaneously, but reappeared ten years later, followed by leukemia. He remarked that leukemia of the skin is characterized by papulous nodules, which are often the first symptom of leukemia. He recommends subcutaneous injections of sodium arseniate in large doses. Pane communicated the results of the inoculation of rabbits with strong doses of pneumococci after immunization. He found intense hyperplasia in the bone marrow and in the spleen. Before death there was a great preponderance of lymphocytes and the white corpuscles were much more numerous than normal. He added that these experiences might prove valuable in differentiating acute leukemia from the leucocytosis encountered in certain infectious diseases. De Semo reported extremely favorable results from calomel in very small doses in twenty cases of pseudoleukemia or infantile splenic anemia.

The address on "Cardiac Neuroses" was by Silva of Pavia, who remarked that we no longer include angina pectoris and Basedow's disease in this list. He explains the etiology of paroxysmal tachycardia by studying the connection between the clinical manifestations and the physiologic data, the former bearing a striking resemblance to the attacks of tachycardia that affect workmen or mountain climbers making unwonted efforts, due to transient neurosis of the pneumogastric. We know that weak excitation of the pneumogastric, when it does not calm the tachycardia, exerts an antitonic action upon the heart and also, on the other hand, that slight excitation of the sympathetic increases its accelerating function. According to Murri, the force of the systole is in direct proportion to the amount of blood contained in the cardiac cavities, and thus, in tachycardia, when the cardiac tonus is diminished and the heart dilated, we have an element which easily explains the increase in the number of the cardiac contractions. The pneumogastric begins the attack; after this the poisons produced by the excessive activity of the heart, prolong it. The facts that compression of the pneumogastric at the neck arrests the tachycardia, and that digitalis is extremely efficient in this affection, demonstrate the correctness of this theory, which attributes the clinical phenomena to the influence of the myocardium and the pneumogastric, especially as we know that the chief effect of digitalis is precisely this increased tonicity of the cardiac fibers, which is ascribed by many to excitation of the pneumogastric. The abrupt termination of the attack is owing to the excitation of the intracardiac ganglia and the cardiac terminations of the pneumogastric, by the cardiac dilation and stasis, which stimulate the pneumogastric center by reflex action, and this in turn brings the heart back to its normal condition. Cardarelli's fine monograph on bradycardia attributes the affection to arterial lesions. Paroxysmal bradycardia may prove fatal during the first or later attack, but cases have been known to last fifteen years, although the average is three and a half. The treatment for cardiac neuroses is the same as for others: Hydrotherapy, then massage, electro- and climatotherapy. He concluded with the remark that the myocardium is always involved in purely nervous cardiac troubles, as there is no longer any doubt in regard to the trophic action of the pneumogastric on the musculature of the heart. Calabrese confirmed the theory in regard to the part played by the pneumogastric in the evolution of bradycardia by the case of a young woman in good health until a sudden attack of syncope and epileptic symptoms, pulse 27, nausea, etc. Atropin raised the pulse to 60, but it grew slow again as soon as the atropin was suspended. Digitalis accentuated the symptoms. Tedeschi sustained Kelly's theory, which attributes paroxysmal tachycardia to disturbed nutrition on the part of the neurons; the connection between the terminal ramifications being suspended, the vagus loses its tonic action upon the heart and tachycardia appears; it disappears whenever the cellular nutrition is regulated again. Gay remarked that in certain cases the tachycardia is one commencement of angina pectoris, and it requires the suppression of the cause (tea, coffee, tobacco) and prolonged medication, strychnin alternating with nitroglycerin, milk diet, etc.

De Renzi has confirmed in diabetic patients the results attained by Kossel *in vitro* in regard to the production of carbohydrates when nuclein is treated with diluted acid. He administered nucleinic acid, nuclein and thymus in diabetics during the complete absence of glycosuria and in every case not only was the elimination of uric acid increased but the glycosuria reappeared, showing that nuclein must also be considered as a source of carbohydrates in the organism.

The beneficial effect of Tesla's currents was proclaimed not only in leukemia, but in various diseases due to torpid metabolism ("experimental results surprising"), uricemia with eczema, etc. Lucibelli announced that the amount of fats eliminated in the urine of eight patients decreased one-half under treatment with the Tesla current. Tedeschi called attention to the splenomegalia which he has observed as a pretubercular symptom, the first to appear, and denoting a rapid and severe tuberculous infection. His cases were all convicts in prison. He considers it the expression of the struggle going on in the organism to throw off the infection. As the conclusion of much research Pittarelli denies the existence of physiologic glycosuria. Boeri announced that experimental lesions of the vagus lowered the limit of the destruction of glucose in the organism (dogs) (from 4 to 6 grams per kilogram, ingested fasting, and 2 to 2.5 grams injected into the peritoneum), to 0.75 to 1 gram, with neuritis of the central stump. Similar results were obtained with ligature of the choledochus but none with lesions as in those without. The decrease in the limit can not be due to modifications in the general metabolism, as it is only produced by lesions of the vagus when the sugar is introduced through the peritoneum. With subcutaneous injections the limit remains unchanged (4 grams). He considers it probable that this function is exercised by the mediation of the liver, which fact is confirmed by the lowering of the limit with injections into an intestinal vein, while with injections of the jugular vein the limit does not vary.

A. Jovane stated that experimentation with dogs, and tests of sixty small children, necropsies of others, etc., had demonstrated that the prejudice in regard to the incompatibility of calomel with acids was unfounded. He administered the calomel with lemonade made with citric, tartaric, hydrochloric acid, orange juice, salty bouillon, chlorid of ammonia, etc., and there was not the slightest intolerance, and no lesions were found in the alimentary canal of moribund children thus treated, showing the non-formation of corrosive sublimate in the combination of calomel with the chlorids, acids and albumin. Massalongo classifies chronic arthropathy into infective, dyscrasic, toxic and nervous. Of all the theories advanced in regard to the etiology, he considers the reflex theory of Marinesco and Brissaud the most in harmony with the anatomic alterations. Chronic articular rheumatism he divides into four varieties, the infective, dystrophic, nervous and mixed. Various facts, among them the frequent discovery of peripheric neuritis both in the infective and nervous varieties, tend to establish the nervous origin of arthropathy. The most recent histologic investigations however point to the central rather than the peripheric system, and he believes that improved technique will in time discover in the spinal cord the primary cause of the affection. The exaggeration of the tendon reflexes is a special phenomenon of this infective group, which he has observed in 45 per cent. in the infective, 85 per cent. in the nervous and 60 per cent. in all. Zagari asserted that uric acid is not found in the blood and urine of patients with gouty arthropathy; that its administration does not produce the affection nor increase it if already existing; that there may be an excess of uric acid in the blood and urine from other morbid processes without the production of gouty arthropathy and that increasing the amount of uric acid by the administration of nuclein combined with compression and traumatisms of the articulations does not lead to the evolution of the affection. He considers uric acid the companion of gouty processes, but the deposit of uric acid in the interior of the cellular nucleus after ligature of the ureter or an injection of uric acid, has convinced him that these processes depend upon some anomaly in the life of the cellular nucleus in some special tissue. As the metabolism is disturbed, the essential product of the metabolism of the nucleus, uric acid, is deposited in the

cell. Bacelli stated that the fundamental facts in chronic arthritis are the alterations in the white tissues and the disturbances in the lymphatic vessels. He mentioned as an early symptom "granulous pharyngitis," also an alteration in the periosteum over the anterior surface of the tibia, with edema, sometimes painful, with uratic deposits below. He has been using oxygen for a long while with fine results in the gouty forms, and also in fatty diabetes.

Maragliano announced that his precipitate of tuberculosis cultures contains both the proteins and the toxins, while Koch's new tuberculin is deficient in the former. It is also twenty times more potent than the product presented by Behring. He has established that the tuberculous organism produces antitoxin, itself, during the intermissions of the disease, which fact explains the clinic experience of spontaneous cure in some cases of tuberculosis. Many more cases would be cured if even a small amount of artificially produced antitoxin could be supplied from without to supplement the autoproduction. He concluded by reporting that forty-six patients cured two to three years ago with his serum, are still perfectly well, with no signs of recurrence. The serum was also endorsed by the experience of several other members.

Professor Queirolo ascribes much of the disturbance in typhoid fever to the imperfect digestion and consequent accumulation of decomposing matter in the alimentary tract. He avoids this by feeding his typhoid patients exclusively per rectum, as long as thirty days if necessary. He reports twenty-six patients thus fed, with remarkably favorable outcome, and no inconveniences. A careful study was made of the urine at the same time; the phenol and indican were much diminished or entirely absent during the rectal alimentation. He used Leube's nutritive enemas, four a day. The tolerance was perfect; opium was omitted after the first enema. Voit and Bauer have demonstrated that 20 grams of albumin can be absorbed by the rectum in a few hours. De Renzi warned against the danger of underfeeding the patient. He has been experimenting with subcutaneous alimentation, but finds it impracticable, as it is difficult to supply the proper amount of calories in this way. He added that the extension of the intestinal lesions would counter-indicate rectal feeding in some cases. Others approved of rectal feeding, especially in the case of children.

Germano confirmed the impossibility of the aerial transmission of the germs of cholera, typhus, and those of the bubonic plague. Menella reported prompt and certain improvement in tuberculosis limited to one lung, the pleura not involved, after gluteal injections of a solution of guaiacol, 30 grams; eucalyptol, 10 grams; and cod-liver oil, q. s. to make 100 c.c. A. Cantani also reported the favorable results of experimental research in regard to immunizing against influenza. He attributes his success to the fact that he used the exudations and emulsions of the organs of the infected animals.

Prof. N. Pane's antipneumonia serum was endorsed by De Renzi, who has administered it in thirty extremely severe cases. All recovered except three; one with grave renal lesions, and the other two dying soon after being received at the clinic. He has also seen two otherwise inevitably fatal cases saved by the serum, which he announces is harmless, even in quite large doses. His mortality with other treatment averages 24 per cent.

The French Congress of Surgery.

As already mentioned, "Contusions of the Abdomen" was the subject of one of the addresses. The advantages of prompt laparotomy were extolled and numerous convincing instances related in which life had been saved by laparotomy immediately after the first nervous shock had passed away, the earlier the better. Other instances of a fatal termination showed the danger of waiting for the manifestation of serious symptoms, when intervention is too late. The patient should be kept warm in bed and watched for the slightest indication of trouble, such as lower temperature, especially of the tongue, faster or slower pulse, suspension or difficulty of urination, change in the voice, localization of the pain, cramps and dilatation of the pupil on the corresponding side when the blow was received on either side of the median line. If the pulse, rapid at first, grows slower while the patient is resting the case is seldom serious. It is important to differentiate between the nervous shock and the shock from hemorrhage. The circumstances of the traumatism are of great significance for the diagnosis. In Demon's experience a wooden rigidity of the abdominal walls always indicated a ruptured viscus. Moty remarked that in the less severe cases opium is the only resource, as ice sometimes entails grave complications, notably phlebitis. Doyen advocated Sneguireff's method of arresting sheet hemorrhage, such as occurs in wounds of the liver, by directing a stream of steam upon the bleeding surface. It is also an excellent disinfectant. Michaux opens up largely, evacuates the blood with large aseptic sponges, examines the intestines systematically in warm sterile napkins and does not eviscerate except when fecal matter or débris is found. He leaves the abdomen largely open, localizing with iodoform gauze and injects serum into the veins at need, with peritoneal lavages with salted water and potassium permanganate. Doyen prefers strictly localized lavages. He presented a new drain which leaves the abdomen still a closed cavity. It is of glass with a projecting lip and two glass appendices, which keep it in place in the peritoneal cavity and ensure its permeability at all times. The outer end is fitted into a sterile condom in which the drained fluid accumulates, without allowing any contact with the outside air. Doyen also described a method of enterorraphy which can be applied to any part of the alimentary canal and has produced results surpassing expectations in some very serious cases requiring resection of a meter and more of the ileum and cecum with a neoplasm of 80 centimeters. He applies clamps above and below the portion to be ablated, which crush the middle and inner coats of the intestines, leaving only a thin wall which he ligates with silk. Two centimeters inside these ligatures he closes the intestine completely with clamps. He then cuts the intestine between the ligatures and the clamps, burning off with the thermocautery and pieces of the intestines still projecting and ligating the vessels of the mesentery as needed. The field of operation is thus cleared, absolutely aseptic. He then fastens the ends of the intestine firmly with a strong double thread, pushing the first silk thread inside after cutting it off close to the knot and performs lateral entero-anastomosis, either by closing the lower end alone and implanting the upper end over it or by uniting the two ends directly with a circular suture. When the end to end suture is made he detaches the mesentery a short distance and fastens the two superposed ends with two rows of stitches on the side toward the mesentery. He then sutures the outer free side, drawing the ligatures which close the intestine outside and cutting them. Elastic forceps applied above and below prevent the escape of the contents of the intestine. The suture is finished in a few seconds and the forceps removed, when the operation is concluded as usual. The complete anastomosis, the uninterrupted course of the canal, the double row of sutures and the absolute asepsis are the advantages of this method.

J. L. Faure reported two cases of serious syncope, one fatal, from the chloroform in performing the operation of resection of the sympathetic in exophthalmic goiter (three cases), and he suggests that possibly resection may render the heart more susceptible to the effect of the chloroform. Doyen claims that his rapid method of thyroidectomy has obtained four absolute cures in four cases and that it abolishes the tachycardia, which is not affected by resection of the sympathetic. His first case has been permanently cured since 1887; his second since 1893. Kocher's statistics show the benignity of the operation, which only requires eight to fifteen, rarely twenty minutes, while the operation on the sympathetic is much more tedious. Faure also asserted that invagination of the stomach in gastro-enterostomy prevents the accumulation of food in the superior end of the intestine, which frequently entails serious results. He avoids this by inserting a piece of the stomach in the intestine in such a way that a buttonhole in the invaginated gastric cone, facing the lower end of the intestine, allows the passage of the food directly into it. The edge of the buttonhole is overcast to keep it open and the cone is securely sutured to the buttonhole in the intestine. Ligatures to produce atrophy in inoperable tumors have been revived lately in the new light of asepsis, and the results obtained amply justify further attempts. Tumors with a single pedicle are best adapted to this treatment, also uterine neoplasms. Tuffier ligated an advanced epithelioma of the latter class seventeen months ago and the improvement was decided and permanent to date. It is now completely mummified; he even doubted his diagnosis until confirmed by the microscope. He also secured marked improvement in an infection of one kidney by ligating the vascular pedicle. Broca has been comparatively successful with ligatures in neoplasms of the face, and Hartmann reported success in fibroma of the uterus which subsided to a remarkable extent, even when only one of the four pedicles is ligated. This treatment is also suggested for certain localized infections, megalosplenia, phlebitis of the sinus, etc. The ligature can be applied to a vein or artery as indicated.

Chipault stated that he had now a record of fourteen cases of plantar *mal perforant*, of which twelve were cured by elongation of the nerve after evacuation of the ulcer.

C. MARTIN of Lyons asserted, as the result of much experimentation with dogs, that it is possible to secure complete regeneration of a bone or articular extremity by supplying light and firm support as a guide for the ossification. He uses a framework of strips of platinum connected by cross-pieces, the size and shape of the missing bone. It holds the fragments apart, prevents the intrusion of the soft parts and can be filled inside with transplanted pieces of bone to assist the new formation.

DURET called attention to biliary lithiasis unaccompanied by icterus or tumor or the usual symptoms, and hence surgical intervention is frequently neglected, although it is the only means of relief from the intense pain, inflammation in the region of the gall bladder and progressive cachexia. It frequently dates from two to ten years previously. There are pronounced digestive disturbances, anorexia, finally neurasthenia and cachexia. The trouble is usually one or more stones lodged in the hypertrophied gall bladder, but without any accumulation of fluid. Cure was obtained in eleven out of his twelve cases.

General Report of the Berlin Lepra Conference.

IS LEPROSY TRANSMITTED BY WEARING APPAREL?

Dr. VON BERGMANN of Riga said the answering of this question met with two hindrances: 1. The long incubation of leprosy in which it is difficult to decide whether in truth the incriminated object, say an article of clothing, has played the part of intermediary. 2. The gap which exists in relation to the vital conditions of the bacillus in our knowledge; for we have no positive notions as to its continued existence, its multiplication and the conditions under which its invasion takes place. According to Arning, Beavan Rake, Stallard, the bacillus can remain unchanged, even in decomposing water, for months, in relation to shape and colorability. The fact that any superficial slight injury of a lepra tuber makes possible the exit of crowds of bacilli into the external world is proved by the facility with which the smear cultures put in evidence the bacilli in the tuberculous form. Besides, the bacilli can easily be shown in the tumor secretion of the tuberous form. We must say, therefore, that if the bacillus is recognized as the nosologic agent of leprosy, the bandages, the body and bed linen, even the clothes and shoes, are objects which have received an abundant bacillary material, and are therefore capable, given the proper condition, to infect another organism.

We meet in practice the statement that the transmission has taken place through objects such as clothes. These statements are, I repeat, difficult to control. In a case in which the patient maintained with peculiar emphasis that he had been infected by the clothes of his lepra brother, which he wore after his death, it can be shown that in the lifetime of the brother there had been such relation between these two persons as to make a direct transmission very possible. The theoretically construed possibility of the spread of leprosy through infected objects can, however, obtain a practical background, if we consider the high percentage which the washerwomen furnish to the contingent of lepers, according to some reports as much as twenty per cent. of the patients. Of the present forty-nine female inmates of the Riga Leprosorum nine were laundresses. To be sure I can not prove that these women have really washed the linen of lepers. Positive statements have indeed been frequently made to me, but verification of the negative statements have not been practicable. Cotfin says that a family caught lepra through infected water, as it turned out that dirty linen of lepers had been sunk into the well from which the water was taken. Cornil attributes, in one case, to the uncleaned official dwelling of a leprous official the disease of his successor. He quotes at this occasion the old standpoint of the Mosaic law which declared the dwelling places of the lepers to be contaminated and gave prescriptions for their sanitation. However that may be, it is certain that until these still open questions are settled, we can not put aside the possibility of the transmission of leprosy through dirty linen, clothes, etc., and that we must take corresponding measures. It is, therefore, to be recommended that in the sanitary police regulations a careful disinfection of these objects, respectively, the burning of the same, be provided.

The sanitary police regulations must, moreover, include the disinfection of the dwellings of the lepers, as here, through uncleanliness of all kinds, especially the spitting on the floor, bacilli deposits are formed which must be made harmless, the more so as the tenacity of the bacilli is very considerable and furnishes the essential condition of a long enduring virulence.

PRACTICAL NOTES.

Ordinary Bottles can be used for the Fluorids if they are first filled with melted paraffin, and then emptied while it is still warm and fluid. The thin layer of paraffin that adheres to the glass will protect it from the chemical.—*Bulletin de la Soc. de Pharm. de Bordeaux*, October.

Anesin.—This substance, which has been described as an aqueous solution of acetone chloroform, has been brought forward by Vamossy as a substitute for cocain; he says it is a good local anesthetic, free from toxic properties.—*Deutsche Medicinische Wochenschrift.*

Diagnosis of Intestinal Worms.—According to Muller de la Fuente, there are two signs which indicate the presence of worms; one is the sudden colic, the pain strictly localized, and the other is a marked contraction of the visual field on both sides.—*Gaz. Méd. de Liège*, November 11.

Hysteria as a Mark for Perityphlitis.—Rendue (*Gazette des Hôpitaux*) alludes to two cases in which the signs of perityphlitis were so counterfeited that an operation was deemed essential for the diagnosis. In one the mimicry persisted after the abdominal section, in the other it did not. He declares against an operation where there is no fever irrespective of other signs. This may be a point well taken.

Bisulphate of Sodium as a Lead Eliminator.—Peyron (*Centralbl. für innere Medicin*, 1897, 42) claims that a daily dose of 5 or 6 grains of the sodii bisulphite in lead poisoning with traces only in the urine, will eliminate as much as 72 mg. in a day. This remedy acts very rapidly, as the maximum excretion of lead occurred two or three hours after its ingestion.

For Inhalation in Catarrh of the Upper Air Passages.—Kafemann recommends as extremely effective the following combination: Menthol, 4; eucalyptol, 2.5; turpinol, 2; essence of pine, 1. A few drops of this liquid are poured into a bottle, which is warmed over an alcohol flame. Balsamic vapors immediately fill the bottle and these the patient inhales through a tube.—*Semaine Méd.*, November 17.

Treatment of Sciatica with Hydrochloric Acid.—The painful spot is painted with acid. hydrochlor. pur. with a camel's-hair brush, two to four coats. It smarts a little, but the pain is relieved at once and radical cure follows in one to three weeks. Small blisters are apt to form and in painting the surface the second time, twenty-four to forty-eight hours later, the blistered spots must be avoided. (C. Gennatas, twelve cases; *Therap. Woch.*, November 7.)

Aid to the Early Diagnosis of Tuberculosis by Injections of Artificial Serum.—Twenty c.c. injected subcutaneously in a normal healthy person produce no febrile reaction, but in a person with tuberculous lesions the temperature rises to 38 or 39.5 degrees C., in the course of nine hours, returning to normal by the end of the twenty-four. The temperature must be taken commencing a few days before to determine the absence of fever, and every three hours afterward. The reaction is not positive unless the temperature attains 38 degrees.—*Semaine Méd.*, November 10.

Euquinin.—A new substitute for quinin has been introduced under the name of "euquinin" (*i. e.* superior quinin). Chemically described, it is quinin in which a hydrogen atom has been substituted by a molecule of ethyl carbonate. The product resembles quinin sulphate in appearance, but is almost wholly free from bitter taste; it gives the regular reactions for quinin. Therapeutically, it is said to not only possess all the virtues of quinin, but its range of application is much wider, and it has the advantage of inducing no secondary effects. Clinical reports so far speak of its successful application in fevers, neuralgia, whooping cough, and as a tonic in anemia and chlorosis.—*American Therapist.*

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per Annum, in Advance $5.00
Foreign Postage 1.75
Single Copies . . . . . 10 Cents.

In requesting change of address, give *old* as well as new location.

Subscriptions may begin at any time and be sent to

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 61 Market Street (Occidental Buildings), Chicago, Illinois.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, 100 Washington St., Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 61 Market Street (Occidental Buildings), Chicago.

Original communications are only received with the understanding that they are exclusively contributed to this JOURNAL.

SATURDAY, JANUARY 1, 1898.

TO COMPEL MIDWIVES TO REPORT CASES OF PURULENT OPHTHALMIA OF INFANCY.

At the Meeting of the ASSOCIATION in Milwaukee, in 1893, resolutions were adopted by the Section on Ophthalmology approving of legislation which would compel midwives to promptly report cases of purulent ophthalmia of infancy to some legally qualified practitioner. As a result of the movement then inaugurated, midwives are obliged to report these cases in New York, Maine, Rhode Island, Connecticut, Minnesota, Ohio, Maryland, Missouri, Pennsylvania, Iowa, New Jersey, Illinois and Michigan, covering a population of over thirty-four millions. The prosecutions have not been numerous and still more rarely have midwives been severely punished for neglect in this respect. But the very existence of this law has had an admirable effect, and wherever a midwife has thus been brought to a sense of her duty, even by arrest, that has had a better effect upon the remainder of her class than all the lectures given and pamphlets published.

We call attention to this law for the reason that it should be passed also by the legislatures of other States and we trust that ophthalmologists, who most frequently see these sad results of ignorance and delay of midwives, will take the matter in hand, and also that medical journals in States without this provision will agitate the subject, so that when their legislatures convene, as most of them do about this time of the year, some move may be made to extend still further the effects of this beneficent law.

THE PATHOLOGIC MECHANISM OF TREMOR.

Although it is one of the most common of morbid motor symptoms and a very general accompaniment of states of weakness the phenomenon of tremor has not yet received a perfectly adequate or satisfactory explanation. We can conjecture of course its mechanism and assume, with DANA, that it is a derangement in the rhythm and force of the tonic influences proceeding from the brain to the muscles, or that it is in some way connected with impaired nervous conduction, but the underlying states that give rise to these lesions of function have not been made clear, nor has this been generally seriously attempted in the works treating of nervous disorders. We can say therefore with LANDON CARTER GRAY, in DERCUM'S text-book of nervous diseases, that the intimate pathology of tremor has been so far an unknown quantity, notwithstanding all the clinical studies and pathologic investigations of the various disorders of which it is a characteristic symptom.

While it is true that as yet we have had no perfectly satisfactory theory of tremor, as regards, at least, its ultimate cause, one thing can be assumed as tolerably certain, that it is of central, and probably cerebral, rather than of peripheral origin. Some authorities have admitted the possibility of lesions of the peripheral motor tracts participating in its production, but this must be from interference with cerebral impulses rather than from the local lesions themselves and were conduction altogether interrupted it is not probable that tremor would occur. In a recent paper in the *Wiener medicinische Wochenschrift*, ADAMKIEWICZ reports the results of a clinical and experimental study of this subject, which seem to throw a certain possible light upon the possible pathologic mechanism of the symptom. He starts with the assumption that the phenomenon is of cerebral origin; there is no tremor that continues during sleep and from this it may be inferred that it is a phenomenon of active central innervation, over which however the will appears to have practically no control. It may be defined as a series of involuntary muscular movements of very brief duration, of central origin, and independent of the will. To demonstrate its character ADAMKIEWICZ employed the following experiment: A piece of laminaria was introduced under the dura mater of a rabbit, and its gradual expansion in that situation caused first spasm followed later by paralysis and spontaneous tremor. Tremor, therefore, he concludes is only a higher grade of spasm, and both, in spite of the pathologic increase of muscular tonus in spasm, are alike paralytic phenomena.

According to the view ADAMKIEWICZ adopts, normal muscular movement is the resultant of two opposed innervations, the one cerebral, passing from the cortex by way of the pyramidal tracts to the anterior horns, the other cerebellar, reaching the cornua through the

posterior columns. The one is the route of volitional impulses, the other that of tonic innervation. If the equilibrium of these is disturbed, by compression or otherwise, we have according to the part involved two varieties of motor disorders; if the pyramidal tracts, we have spasm or tremor from the uncontrolled cerebellar innervation; if the posterior columns, we have the disordered movements of ataxia. To explain how the tonicizing cerebellar fibers are put into action to produce tremor ADAMKIEWICZ assumes that, under pathologic conditions, they are excited by bodily movements, temperature, etc., and even by the normal heart pulse and the circulation, excitants that like other similar agencies are normally unfelt and only become irritants in conditions of disease.

Tremor can therefore be defined according to the ADAMKIEWICZ theory as the result of defective functioning of the pyramidal motor routes and a pathologic irritability of the tonic cerebellar fibers. It is a symptom of cortical motor weakness and may be caused, as he claims his pupils have shown, by any and all influences that diminish the energies of the cortical motor zones. This would explain, for example, how emotional disturbances may produce it, as their action is often directly weakening and can not be otherwise than cerebral in their action. In fact, any form of recognized tremor will readily come under this definition, except possibly that ascribed to peripheral lesions, and, if such ever occurs, the cause may also be ascribed to hindrance of cerebral innervation. All tremors are essentially identical in that they cease during sleep and are associated with muscular weakness, which when its source is sought is presumably of central origin. The theory that the function of the cerebellum includes the regulation of muscular tonus, though it has been questioned by some authorities, is apparently the one that is coming to be generally accepted and is strongly maintained by ANDRÉ THOMAS in one of the latest published memoirs on the anatomy and physiology of this organ. That, with impaired or lacking cerebral inhibition, this function may be pathologically hyperexcited so as to produce tremor is not only conceivable but highly probable according to all analogies and experience in pathology. Whether it is fully accepted or not, this theory of tremor offered by ADAMKIEWICZ appears to be on the whole as satisfactory a one as any yet proposed, both in its explanation of the presumed details of the mechanism of the symptom and in its agreement with admitted physiologic facts.

CONCERNING ATYPICAL TYPHOID FEVER AND PURE TYPHOIDAL SEPTICEMIA.

Atypical manifestations of typhoid fever are well known, not only to the clinicians but also to the pathologic anatomists. At the International Medical Congress, in Moscow, Professor CHIARI, of Prague, reported the results of his studies concerning the atypical manifestations of typhoid.[1]

Deviations from the usual or typical changes in this disease may occur in the following manner: 1. The typhoidal changes usually observed in the intestine, in the mesenteric glands, and in the spleen, may be peculiar. 2. Unusual inflammatory changes, due to the anomalous localization of the typhoid bacilli may be met with. 3. It may concern a general blood infection, without any definite localization, that is to say there may be a pure typhoidal septicemia.

In the intestine the typhoidal inflammation may be, so to speak, abnormal as regards its extent, its intensity and its localization. Thus the intestinal changes may involve not only the lower ileum but the whole small intestine and even the stomach, as well as the large intestine clear down to the anus. On the other hand, only a very few, and even but one single PEYER'S patch, may be involved. In some cases there may be very extensive inflammation and necrosis, involving all parts of the intestinal wall; in other cases the process remains confined to the mucosa, no necrosis occurs and it requires special attention in order to find the intestinal lesions. This last is, particularly, frequently observed in children. It may furthermore happen that there are no changes in the usual place in the lower ileum, but that the changes are confined wholly to the large intestine, or wholly to the stomach.

The mesenteric glands may be but slightly enlarged, or there may form very large swellings in which necrosis may occur to an even greater extent than in the intestinal foci.

The spleen varies greatly also as regards its changes. It may be but little enlarged, or the enlargement may reach a considerable extent. It may be accompanied with copious hemorrhages, foci of necrosis may arise, the capsule may be so stretched that in removing the organ it is ruptured, or it may rupture spontaneously during life.

Then, there are cases in which there is complete absence of all involvement of the gastro-intestinal tract, the only changes being in the mesenteric lymph nodes and the spleen; furthermore, cases occur in which a very marked acute splenic swelling perhaps leads to the postmortem diagnosis of typhoid fever, the so-called spleno-typhoids, of which a case has been described by KARLINSKI.[2]

As regards unusual localizations of typhoid bacilli and the resulting changes, then it may be said that there is perhaps no organ in which inflammatory processes, due to the bacillus typhosus, has not been observed. These were either complications in the course of otherwise anatomically typical fevers, or there were atypical typhoidal changes in the organs usually affected. Thus there have been observed purulent

[1] Zeitschrift f. Heilkunde, xviii, 1897.
[2] Wiener Med. Wochenschrift, 1891.

inflammations due to the typhoid bacillus, of the pleura, lung, thyroid gland, peritoneum, parotid gland, biliary passages, kidneys, testicles, the periosteum, bone marrow, joints, skin, subcutaneous tissue, muscles, meninges,[3] endocardium and of the middle ear. Thus GUARNIERI[4] describes a cholangitis due to the typhoid bacillus while the intestine was free from changes, the typhoid bacillus having been cultivated from the blood of the patient during life. KARLINSKI[4] found in a case of acute splenic tumor, without changes in the mesenteric glands or intestine, two myocardial abscesses containing typhoid bacilli. The bacilli were also cultivated from the spleen, liver and kidneys.

The most interesting deviation from the normal of typhoid fever is the one in which there are no distinct local foci whatsoever, the postmortem examination showing only moderate splenic tumor, and yet the bacteriologic examination reveals the existence of general typhoid infection. Such cases must be regarded as pure typhoidal septicemias.

It is known that in other cases of typhoid there has occurred, in addition to the typical and atypical local changes, a greater or less distribution of bacilli throughout the whole body. In connection with this it will suffice to refer to the case reported by FLEXNER[5] of typhoid septicemia, associated with abscesses in the kidneys. It is well known that the typhoid bacillus may be eliminated through the kidneys during the occurrence of the fever, and that it can be cultivated from the urine; it is also constantly found in the bone marrow during and after attacks of typhoid fever, showing that at some time during the disease a septicemia or invasion of the blood by the bacilli had taken place.

A pure typhoid septicemia has heretofore been described, most frequently in fetuses that were born by mothers sick with typhoid fever. The cases of so-called typhoid septicemia hitherto described have otherwise, in reality, been cases of atypical localization of the anatomic changes, with septicemia. In this connection it is well to bear in mind that there are those who claim that typhoid fever is under all circumstances a primary blood infection, and that the intestinal and other changes are secondary manifestations.

CHIARI then describes the cases of typhoid fever which were examined in his institute during the first five months of this year. The total number was nineteen cases, but in seven of these typhoid fever in the anatomic sense was not present; in six of these the positive result with WIDAL's serum test had led to the clinical diagnosis of typhoid fever, and in five of the seven it was found on bacteriologic examination that it really concerned a pure typhoidal septicemia without any localized lesions. These cases, which are extensively described from a clinical, anatomic and bacteriologic standpoint, suggest the necessity for bearing in mind that when typhoid fever is endemic there may occur a pure typhoid septicemia, which may become confounded with other diseases, and furthermore, that when during life the serum test has given positive results we must be very careful not to exclude typhoid fever, even if the postmortem examination fails to show any of the local lesions characteristic of this disease, but to resort to a complete bacteriologic examination with reference to the presence of typhoid bacilli before reaching any definite opinion as to the nature of such a case. It may be seen that perhaps some of the observations that have appeared to point against the reliability of the serum test may not always rest upon sufficiently well taken grounds, and especially so when bacteriologic examination of the cases in question has not been made. It is well in this connection to remember that, as has also been studied by CHIARI, the gall bladder may act as a depot for typhoid bacilli, so that when a typhoid infection of the body has occurred bacilli are nearly always to be found in the gall bladder, even when other organs are sterile.

[3] See article by Ohlmacher on typhoid meningitis in the Journal Aug. 28, 1897.

[4] Quoted by Chiari, loc. cit.

[5] Journal of Path. and Bact., iii, 1895.

THE PROGNOSTIC IMPORTANCE OF THE APPEARANCE OF EYE LESIONS IN INTERSTITIAL NEPHRITIS.

There are few practitioners throughout the length and breadth of the land who do not, in the course of a year, meet with more or less classic instances of interstitial nephritis, commonly styled Bright's disease.

Although this renal lesion is encountered among rural dwellers, it is far more likely to proclaim its presence among those who by their devotion to urban life outrage Nature, and sooner or later pay the bill in chronic constipation, catarrhs, auto-intoxication in its myriad forms, in short all those disordered conditions that predispose to the final production of what SCHMEICHLER has aptly characterized as "connective tissue individuals," persons whose viscera and other highly specialized organs become the seat of interstitial processes. Thus is the foundation for interstitial nephritis laid, and though in its earliest phases the disease may be many sided, presenting a variation in subjective and objective symptoms often baffling to the practitioner, when the malady begins to unfold its classic features there is little likelihood of error in diagnosis. From this stage on to the last sad picture, the march of the process is more or less rapid according to the faithfulness with which the patient adheres to the dictum of his medical adviser. The disease may drag its weary length along, exhausting the utmost long-suffering and patience; or, on the other hand, in the midst of life the patient may be in death.

If such be the uncertainty as to the termination of

this process which, for convenience is called intestitial nephritis, it is the duty of the medical man to familiarize himself with those danger signals that are hung out from time to time in nearly all slow but fatal diseases. In the malady under discussion nothing is of more grave import than the appearance of lesions in the eye. This is not new truth, and yet it is truth that deserves far more recognition than has ever been accorded it. The advent of retinitis in the eye of an albuminuric heralds the beginning of degenerative changes in the area of distribution of the carotid arteries, seeing which it necessarily follows that similar degenerations and hemorrhages within the cranial cavity are to be anticipated. This sequel to interstitial nephritis is not uncommon and many ophthalmic workers have had their study of such cases cut short by cerebral hemorrhage. Indeed such a termination is not infrequent among those who are the subjects of hemorrhagic glaucoma, another terminal degenerative sign of interstitial kidney.

A study of the statistics of this subject is not without interest. Two years ago, BELT was led by his search through the literature of the subject into feeling that a more hopeful prognosis might be given in cases of Bright's if strict adherence to the family physician's counsel as to therapy, regimen and prophylaxis were observed. With this preconceived idea in view, BELT brought together the data of 409 cases furnished by most of the prominent ophthalmologists of the United States. But his hopes fell, for when the accumulated facts had been statistically arranged it was learned that of 409 individuals the subject of albuminuric retinitis due largely to living at the pace that kills, 155 were cases in private practice, of which number 62 per cent. died within one year, 85 per cent. in two years, and 15 per cent. lived more than two years. Of the 77 hospital cases, 85 per cent. died within one year, 93 per cent. within two years, and 7 per cent. lived more than two years. Of the remaining 187 mixed cases, 65 per cent. died within one year, 93 per cent. within two years, and 7 per cent. lived more than two years. And if these facts be properly collated, it is plainly shown that the large majority of the victims of albuminuric retinitis die within the first year after the appearance of the eye lesion, fully 90 per cent. die before the expiration of the second year from that time, while a scant 10 per cent. drag out a weary existence stretching over 10 years sometimes, and even to 17 years as in the minister reported by WEBSTER.

The value of accurate prognosis can not be overestimated. If it so happen that a physician's prognostications frequently fail of fulfillment he comes to be lightly viewed in the community and is held by his townspeople and brethren in the guild as a false prophet. On the other hand, the medical man should not be slow to prophecy when known facts are at hand; for let his prognosis, even though they be filled with foreboding and gloom, come unfailingly and timely to pass, and he will be laden with the confidence and increase of his patients, and they will forgive his shortcomings to seventy times seven. Such is the power of prophecy.

The foregoing statistics, then, establish a scientific truth of twofold value. First, in that it enables the practitioner to prognose intelligently in a given case; second, by reason of such authoritative prognosis, the sufferer, who is usually of the well-to-do class, may be acquainted with the suddenness with which his malady may terminate, permitting him to so arrange his worldly affairs as to set aside all necessity for the litigation that follows upon the death of most of those who are unfortunate or improvident enough to die intestate.

THE SOCIAL POSITION OF THE BRITISH MEDICAL PROFESSION.

The *Practitioner* has lately congratulated the British medical profession on the limited extent to which it suffered contamination from American medical science at the late (Montreal) meeting of the British Medical Association. The meeting in question was an excellent exhibit of how far philistinism has sunk British medicine beneath the level of American and continental (European) medical science. The section work in the main would not disgrace a third-rate American medical society of the mutual admiration type. The section on psychology, for example, sank far below the corresponding Section on Neurology and Medical Jurisprudence of the AMERICAN MEDICAL ASSOCIATION. In the last a European continental physician would find himself at home; in the first he would feel that, like Faust in Auerbach's *Keller*, he was among people,

> With little wit and ease to suit them,
> They whirl in narrow circling trails
> Like kittens playing with their tails.

The downward social trend of the British medical profession, partly resultant on this philistinism and partly on its flunkeyism, appears evident, as the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has already pointed out, in the award of honors in reward of medical eminence. While the SALISBURY administration has honored itself by the elevation of Sir JOSEPH LISTER to the peerage, the British medical profession has been hitherto condemned, as already pointed out in these columns, to the contemptible baronetage. The abolition of this is just now being demanded because of its notorious creation in the STUARTS' day by what MACAULAY ("Political Georgics," 1828) calls

> Boodles' patriot band
> Fat from the leanness of the plundered land.

It must in justice be admitted that there is a decided flunkeyism in the British medical profession which about two decades ago found expression in an animated discussion over the method of shaking hands with different ranks, whether the practitioner should not always ring the servants' doorbell and the like very caddish topics. Letters on these matters overflowed the columns of the *Lancet, British Medical Journal, Medical Times and Gazette* and the *Medical Press and Circular*. The whole subject was finally summed up by a "veteran practitioner of fifty-one years' standing" in the *Medical Times and Gazette*. "My practice," he remarks, "has been to ring the visitors' bell gently, though even that, when calling to see a servant, has seemed to me to savor of impropriety. But whatever course the young doctor adopts, let him above all things beware of using the knocker. That would imply familiarity with the family, the very suspicion of which it behooves the circumspect practitioner to avoid. So long as he confines his manipulations to the bell-pull, he is safe. The next problem which confronts him is what to do with his hat. Following the custom of other men who have business in the house, he should by rights leave it in the hall, not on the floor but on the hall table. This course however may involve him in serious danger. If there are children about the house they may be counted upon to play with it, perhaps march into the drawing-room with it on their heads, a complication, I need hardly say, as being evidence of undue familiarity would be of the gravest import. My own plan has been to take my hat with me and only relinquish it when the clinical investigations of a case rendered such a course absolutely necessary. Familiarity is impossible so long as the hand keeps touch of the beaver. It is an almost impregnable rampart and would take the sting out of anything a tale-bearing domestic may say hereafter. The ethics and equity of handshaking form a difficult subject. As a rule, I agree with the *Lancet* that it is best to avoid it. If a lady of title offer two jeweled fingers the young practitioner would be at once foolish and rude to decline to take them, but the touch should be cold and momentary. With the wives of commoners it will be best if it can be done without obvious rudeness, to bow formally instead of offering to shake hands, both on entering and leaving."

THACKERAY voiced the feeling of the British county snobocracy toward the medical profession in Dr. Pendennis. He, after achieving a competency, became a member of the squire-archy and felt it as deep a disgrace to be styled "Doctor" as he had previously felt it to be an honor. American judges, notorious as many of them are for defiance of science, would hardly go to the extent of the English judge of county snobocracy ancestry who decided that a bill against a county magnate for treatment of scarlatina in a child, was an extortion since no child could have scarlatina without being confined to bed. In this the judge but imitated the conduct of Queen VICTORIA in the Lady FLORA HASTINGS case. This young lady, when a maid of honor, began to exhibit signs of abdominal enlargement. The gossips of the court loudly hinted that she was pregnant and their view was adopted by the Queen. The majority of the court physicians declared, after a vaginal examination, that the unfortunate girl was not pregnant but suffered from a malignant tumor. Queen VICTORIA ignored their opinion, drove Lady FLORA HASTINGS from the court in disgrace, deprived the most manly of the court physicians of their places and ostracized those by whom they were employed. The rapid development of the abdominal enlargement soon threw pregnancy out of the question. On the girl's death a necropsy revealed the existence of uterine sarcoma. No public amends were made to the memory of the unfortunate girl. The court authorities deprived the girl's father of a court office. The medical men who made the necropsy were subjected to scurrility and persecution by the court clique, which was finally ended by suit for libel. Had the mass of the British medical profession been anything but flunkeys of the time of the type of the "veteran of fifty-one years' practice," no head of a constitutional government would have dared to insult them for a conscientious clearly impartial necropsy. The contamination the *Practitioner* fears from the American medical profession, is the infusion of self-respect which might destroy the flunkeyism exhibited in the controversy over doorbell ringing and handshaking just quoted.

CORRESPONDENCE.

Department of Public Health.

WASHINGTON, Dec. 7, 1897.

Honorable FRANK S. GARDNER, Secretary New York Board of Trade and Transportation, New York City.

Dear Sir:—Having seen a letter addressed to yourself by Warren E. Anderson, dated Pensacola, Florida, Nov. 24, 1897, and published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in which this gentleman undertakes a serial criticism of "The Efficiency of the Marine-Hospital Service in the conduct of Federal Health Affairs," and which he states is made "without malice toward any one or animus of a personal character whatever," I take the liberty of stating to you that there appeared before a board of examiners of the Marine-Hospital Service in June, 1883, one Warren E. Anderson, a native of Marianna, Florida, and a graduate of the Medical College of Alabama. It may be interesting for you to inquire whether the gentleman who writes to you upon the character and abilities of the officers of the Marine-Hospital Service is this same Warren E. Anderson, who stood lowest in a class of eleven candidates for appointment in the Service, and was rejected on account of lack of professional attainments. If this shall prove to be the same gentleman it will serve to explain the animus contained in his letter.

Referring to his first objection as to the age of officers enter-

ing the Service, he has misstated the maximum age of applicants who are eligible for appointment, which is 30 years instead of 28 as stated by him. Particular information upon this specious objection as to the age qualifications of the officers of this Service is to be found on pages 11 and 12 of an "Address" by the Supervising Surgeon-General of the Marine-Hospital Service, in which it will be seen that the average age of the sixteen surgeons is 50 years, the average age of the twenty-six passed assistant surgeons is 35, and of the nineteen assistant surgeons, 29 years.

Referring to his second objection that less than 5 per cent. of the officers of the Service belong south of latitude 37. This misstatement may be dismissed at once by pronouncing it an untruth. The official list of the officers of the Service is inclosed, from which you will see that over 50 per cent. of the officers of the Service were born south of Mason and Dixon's line.

Instead of 10 per cent. of the regular officers of the Service who have had experience with yellow fever, at least 25 per cent. have been connected with one epidemic or another during the ast twenty years.

Of other portions of his letter, which are mere expressions of his opinion as to the efficiency of the work of this Service, I shall not attempt a refutation, as you will have already concluded by the statements above given, taken from the records of this Bureau, that he is ignorant of the personnel of this Service, and if it shall prove that he is the person who was rejected as unfit for appointment on account of lack of professional qualifications, his "animus of a personal character" must vitiate all other views which he professes to hold concerning the Service.

I shall mail to you under separate cover an official list of the officers of the Service, with marks to indicate those who have served in epidemics of yellow fever in the past twenty years, an "Address" on the Public Health Service in the United States, together with the "Address" of the Supervising Surgeon-General before the Committee on Interstate and Foreign Commerce of the House of Representatives in 1894, all of which will give you official and accurate information upon the points which have been misstated to you by your correspondent.

Very truly yours,

[Signed] CHARLES E. BANKS, Surgeon M.-H. S.

PENSACOLA, FLA., Dec. 15, 1897.

HON. FRANK S. GARDNER,
Secretary Board of Trade and Transportation, New York City.

Dear Sir:—Please accept many thanks for your valued favor of the 8th instant, with enclosure, dated Washington, Dec. 7, 1897.

I had hoped that the calm, dispassionate reason of man would prevail in the discussion so auspiciously begun by us during the past summer, and which gave promise of rich reward so far as the advancement of the health interests of our country was concerned. The sudden and violent interjection, however, into this hitherto friendly contest, of the unwarranted, wanton, unjust and unmanly personal attack upon me by an *attaché* of the United States Marine-Hospital Bureau at Washington, in a recent letter to you, would seem to have disturbed, temporarily, at least, that serenity and peace of mind so necessary to the performance of a task undertaken in behalf of the public weal. I must confess that I was both surprised and pained upon reading the communication of Surgeon Banks to you, and sincerely regret that the incident should demand any notice, whatever, at my hands. I was surprised because I was ignorant of the fact that it had become a settled policy of the departments of our government, to *suppress debate of important public questions, by a resort to personal attack upon the quiet, unoffending (but tax-paying citizen) of the Republic.* I was pained that an imputation so base, so cowardly, so reckless and so false should be made against the honesty of my motives. For the past fifteen years I have lived in this community, and in that time have won the respect and esteem of the people. I have held important public offices by both appointment of the governors of the State and election of the people, but no one has ever before questioned my integrity, or doubted the sincerity of my purpose. That it should be done now by one I never saw or knew, one whom I have never even criticized, is indeed inexplicable. Objectionable *systems* I always condemn and attack; *men*, simply as such, never.

If you will bear with me for a few moments, I will relate as briefly as possible the following facts: In 1883 I was examined in Washington by a Board of Examining Surgeons of the Marine-Hospital Service, in company with *nineteen or twenty* other applicants for *a vacancy* then existing. The examination began Monday forenoon of May 28, and by *Thursday* the class has been reduced to *eleven*, the others having failed to keep up the required daily average of 70. Saturday night, after having *stood* the examination to the close, I met the Surgeon-General, Dr. John B. Hamilton, who, in answer to a question, stated that I had "failed to get this appointment;" that several—three or four—were ahead of me; that, "results of these examinations being *secret*, I can not tell you just how you have been rated by the Board." He further urged me to appear again the following year, provided a vacancy occurred. Returning home, the Surgeon-General sent me an *appointment* to the Station at Indianola, Texas, as Acting-Assistant Surgeon. Yet, Surgeon Banks says I "*was rejected for appointment on account of lack of professional qualifications.*" Surely, with access to the *secret* archives of the Bureau, he should not have withheld half of the truth to suit his own purpose! I reported at Indianola, but not liking the location, resigned and returned to Pensacola, where I have resided since, and, so far, without occasion to regret the "alleged failure" before the Board of Examining Surgeons; and the episode itself has long since been lost to memory in the activity of a busy, professional life.

It would seem to me, however, that the people care nothing as to how Warren E. Anderson was rated on examination in 1883; how Charles E. Banks stood in his class; whether he was examined at all, or whether he secured his present lofty position by political "pull," or personal favoritism. They do desire to have, though, a free, fair and unbiased discussion of the subjects of quarantine, and the prevention of epidemic disease. The enemies of the Little Corsican pointed with derision to his repeated failures on examination, but military critics point with impartial pride to Rivoli, to Arcola, to Austerlitz, to Marengo, to Jena, to Friedland, to the conquest of a Continent, as his title to undying fame! Millions of people have long since forgotten that the hero of the civil war stood amongst the lowest of his class at West Point, but they all remember that on an eventful day in April, 1865, he stood first in glory of arms on the field of Appomattox, and first of all men in that noblest of attributes—*magnanimity!* Your Washington correspondent might make the attempt to emulate this illustrious example, in this one particular.

Personally, however, I care naught for the reflections of Surgeon Banks upon my professional ability of fifteen years ago, or now. I know nothing (and care less) of his attainments, past or present; but his letter indicates clearly that the rest of gentlemanly bearing was not applied to his case, or he would now be engaged in earning a livelihood at some honest trade on the sandy beach of the Atlantic Ocean, or the rocky sides of the snow capped hills of Maine.

In dismissing forever, I hope, the personal references of Surgeon Banks' letter (there was nothing else in it), I would say that a cause requiring the use of such infamous methods as those employed by him, is surely in a high state of decomposition; far beyond the reach of moral disinfectants. But how

horrible in contemplation even, the control of our health affairs by a man who could write the letter to you from Washington dated Dec. 7, 1897, and yet he stands, I believe, in line of promotion!

It might be well for you to determine the actuating motive of all those earnest advocates of a separate Department of Public Health; and whether or not Doty and Girdner and Wingate and Porter and Bloxham, the members of the AMERICAN MEDICAL and American Public Health Associations, the press of the South (almost without exception) have had their youthful aspirations clipped by boards of examining surgeons; and if so, shall they be frightened away by the skeletons of a long-forgotten past, exhumed in ghoulish glee from secret archives of the Marine-Hospital Service by your correspondent? It must be so, according to the only argument he has advanced in his letter.

For your information, I will say, that for the past fifteen years I have had ample opportunity of studying yellow fever epidemics in the South. My knowledge of their management has been obtained by both personal observation and reports of the public press, and I believe this information to be as accurate as any furnished by the Marine-Hospital Service. That, in the main, the facts detailed in my letter to you, of the 24th ultimo, are correct, no truthful man acquainted with contemporaneous history can deny. The discrepancy of *two* years in the "age qualification" is immaterial to my argument, and was an unintentional error. The following clippings, taken from the *New Orleans Item* may prove the correctness of another point made by me:

"A number of Marine Hospital, local physicians, and Health Officer Porter of Florida, all yellow fever experts, had a reunion yesterday in the rotunda of the St. Charles Hotel, and the proposed National system of quarantine was liberally discussed. The Marine Hospital men admitted to having just seven officers in their service who had faced Yellow Jack. Seven physicians, however expert, are hardly adequate to protect the yellow fever frontiers, extending from Charleston, S. C., to the mouth of the Rio Grande, and they admitted this fact."

"It now develops, by the T. D. system of deferentiation, that the Marine Hospital corps have very few officers who have any experience or practical knowledge of yellow fever. They have just six officers out of sixty-five and *The Item* has repeatedly published this fact during the past three months."

Your Washington correspondent would have it appear that I thought too few of the officers of the service came from "south of Mason and Dixon's line," whereas I made no such reference to that historic landmark, but stated that only a small percentage of them came from "south of latitude 37, or that area of the country likely to be invaded by yellow fever," meaning more particularly the Gulf States.

In conclusion, allow me to say, that my "earnest protest" contained no personal reflection upon any officer of the Marine-Hospital Service, many of whom I know, respect and honor; that it was conceived with as little malice as one could find in the breast of a new-born babe.

To Surgeon Banks I would commend, observing his ignorant disregard of the golden law of Christ, the injunction of Allah's prophet: "Be moderate in your speech, for the most unwelcome of all voices is the voice of an ass."

I shall refuse further notice of this gentleman, and trust that he may not again disturb the peaceful trend of my thoughts.

The letter from Washington having been published in the *Evening Post*, I would request the same courtesy be shown me.

Very truly yours, WARREN E. ANDERSON, M.D.

Curettage of the Uterus in Incomplete Abortion.

FT. ADAMS, R. I., Dec. 21, 1897.

To the Editor:—In the JOURNAL of Nov. 27 and Dec. 11, 1897, articles appeared on the treatment of inevitable abortion, and I present the following history of a patient in which curettage was performed as a means of emptying the uterus of the retained secundines, which resulted in the prompt recovery of the patient from an almost moribund condition.

The patient, a female of middle age, multipara, anemic and debilitated, while about her household duties suddenly fell to the floor from continuous loss of blood, which had been a prominent symptom for several days and had been attributed to a more than usually profuse catamenia. All knowledge of a probable pregnancy was denied.

Pain and hemorrhage were very pronounced symptoms, and the patient was at once placed in bed, the foot end raised, morphia and viburnum were administered *pro re nata:* the hemorrhage and pain were relieved for a few hours, only to reappear with renewed force. An examination showed the cervix to be soft and dilated. The lower uterine segment was compressible and softened. The general condition of the patient was very bad, lips white, cornea glassy, radial pulse not perceptible, extremities cold. Upon approaching the bed the patient vomited and sank back utterly exhausted. Subcutaneous injections of strychnin, saline solution and brandy brought about reaction, and chloroform was administered at once; anesthesia was prompt and a remarkably small amount of the chloroform sufficed. The patient was placed in a dorsal position on the Kelly's pad, the cervix drawn down and dilated with steel dilators. An irrigating sharp curette was introduced and the uterus was thoroughly cleaned out. Large pieces of placental tissue were removed but no signs of the fetus were observed. The hemorrhage promptly stopped and the uterus contracted well. A strip of iodoform gauze was introduced into the uterine cavity and allowed to remain twenty-four hours. The patient was removed to another bed and recovered without experiencing further pain, nor was there any subsequent rise of temperature. The bedding from which the patient was removed was saturated with blood to an astonishing degree.

It can probably safely be asserted that the safety of patients suffering from abortion lies in the prompt relief and abatement of the alarming symptoms, allowing the pregnancy to continue, or the evacuation of the uterus of all the products of conception. The immediate and remote dangers of abortion are many, any one of which might end fatally. If it is determined that a case of abortion is inevitable, the sooner the uterus is empty the safer for the patient. If surgical intervention will accomplish this object with less suffering, and avert such possible complications as hemorrhage, putrid intoxication, septicemia and peritonitis, suppurative arthritis, embolism, tetanus and chronic uterine disease, its general adoption would seem to be commendable.

WILLIAM ROBERTS, M.D.,
Hospital Steward, U. S. Army.

The New York Medical League and the Sick Poor.

NEW YORK CITY, Dec. 15, 1897.

To the Editor:—Many good people are suffering from the apprehension, and misapprehension, that the New York Medical League is opposing charity to the sick poor. This is entirely foreign to the purposes of that body, therefore we are directed to communicate to you and, by courtesy, through you to the public, the following statement:

The New York Medical League believes:

1. That there is not enough charity work done in this city.

2. That there is too much of the benevolence business transacted. That many worthy poor are deprived of the alms provided for them, because all those alms do not reach the truly needy through the proper direct channels. And that it is a shame that any institution should show handsome annual profits and yet beg for city money, especially when its earnings represent monies derived from the poor.

3. That all dispensaries, etc., should be free, for it is a cruel

and unnecessary hardship to ask poverty-stricken persons to pay anything for medicines or surgical appliances.

4. That it is a bad policy to give city money to private institutions, to the detriment and loss of the public ones appointed for the care of the sick poor. We believe that the city institutions should be repaired, improved in sanitation and illumination, and should furnish larger and better accommodations. The city money should be used to give better food, warmth and clothing to the patients under treatment in the city hospitals.

5. It is all wrong to give public money to medical colleges; the profits go into the pockets of the faculty or into the institution. These incorporated colleges are close corporations and just as much money-making enterprises as a grocery store and a gas company.

6. It is an outrage that the public institutions should be obliged to maintain a patient on less than thirty cents a day, while the city gives over one dollar per day to private institutions for the same work.

7. The Board of Estimate and Apportionment stood a tie, two to two, and the chairman cast the deciding vote. Therefore, the Mayor is responsible for the fact that the municipal institutions will be a reproach to our city because the money that should have gone for their urgent necessities has been given away. As he himself stated in a certain case, it was given because he knew the man interested.

8. The tax-payers are willing that private persons should give their own money, but we do not believe they approve of any diversion of public money away from the public institutions, or of any gift of the same to close corporations.

9. Finally, we wish to state that in the large gathering that protested, there were representatives of tax-payers' associations, business men, etc. The doctors were there simply to give evidence against the farce behind the scenes, partially veiled by the mantle of a so called charity.

DOUGLAS H. STEWART, M.D.,
Cor. Sec., New York Medical League.

License in Germany.

DETROIT, MICH., Dec. 20, 1897.

To the Editor:—Dr. B. Becker's friendly corrections and suggestions concerning the licensing of physicians in Germany are to the point, but in some instances incorrect. While the subject is too unimportant to consume much of your space, once begun, I believe in finishing anything correctly.

An American graduate in medicine, in order to matriculate at a German university needs possess no further documents than his diploma and passport. Whether or not an A.B. or A.M. degree of this country would be considered an equivalent by the German authorities of a *testimonium maturitatis* I am not prepared to say. Any physician desiring to leave this country for the sake of engaging in the practice of medicine in Germany where, by the way, there is absolutely no demand for a foreign physician, can get the necessary particulars by addressing either Seine Magnificenz p. t. Decanus der medicinischen Fakultät der Universität (Berlin, etc.), or the Board of Examiners.

The study in the preparatory school, gymnasium, embraces a curriculum of fourteen semesters (seven years) only. A young man may enter the university at the age of 17 years. Dr. Becker is correct concerning the statements that such universities as Johns Hopkins, Harvard, etc., are not considered equivalent to a German university. Any United States medical college in good standing with the Association of American Medical colleges is "OK" as far as this goes in Germany.

If the government calls a physician, surgeon or scientist to a chair in a university, even if he be a graduate from a so-called irregular college in this country, he is immediately licensed to practice medicine without any further ceremonies. Occasionally a great foreign physician (and there are plenty of them here) will get special privileges from the Minister (secretary) of Education. So, for instance, I am satisfied that such men as Senn, Osler and others, whose works are considered standard all over the civilized world, would have but little difficulty in getting a state license, without the prescribed examination. Germany honors even foreigners, if they deserve it.

In addition I beg to say that in Germany exists a law called *Gewerbefreiheit*, giving *everybody* the privilege of practicing medicine, forbidding him to call himself doctor or signing himself *practischer Arzt*. He can also not sign death certificates and there are a good many more privileges he does not enjoy.

An American physician could have a sign reading: "Dr. N. N., approbiert in Amerika."

The statement made by Dr. Becker, that the requirements are practically the same all over Europe is erroneous, for in Austria, for instance, an American diploma gives the holder but little if any standing, even when he wants to matriculate as a student. He would have to begin like a freshman.

In conclusion I beg to say that it would be a very good idea for the editorial management of the JOURNAL to publish a *résumé* of the laws governing the practice of medicine in all countries. There are many South American, African and Asiatic countries where American physicians would find a great field of work, but they are ignorant as to whether or not they are authorized to engage in the practice of medicine there.

How difficult it might be for a poor physician, who seeks his health in the South, to pass an examination in Spanish or French and pay a large fee when he intends to practice among American or European settlers only, is plain.

I thank Dr. Becker for the trouble he has taken; and "A Reader," the original inquirer, might do well to first write to the Board of Examiners, in the city he intends to settle, before crossing the ocean. Very truly yours,

GUSTAVUS M. BLECH, M.D.

Practical Prophylaxis.

CHICAGO, Dec. 26, 1897.

To the Editor:—As medical men who believe in prophylaxis, we are in duty bound to do all in our power to prevent disease and suffering. Most diseases are caused by improper food, bad air, lack of sunlight, exposure, bad occupation, worry, overwork, heavy work, irregularity, unsuitable climate, traumatism, or alcohol. These causes are mostly the results of poverty. We all know only too well the effects of poverty's surroundings upon moral, mental and physical health. When ten years of poverty will cause adults to deteriorate and often become criminals or commit suicide, is it any wonder that children should be warped mentally, morally and physically for life?

Poverty is without doubt the chief cause of degeneration, child labor, drunkenness, crime, anxiety, disease, insanity, suicide, dead-beats, charitable institutions, dispensaries, etc. If we would prevent the greater part of this, we must prevent poverty.

Poverty and destitution always begin at the exact point where men can not get a chance to use land and machinery; because the former is the source of all food and shelter, and the latter is the only civilized means of obtaining food and shelter from the source. We can easily imagine what would happen if the source of water and the means of reaching it were all controlled by private interests. You can actually see and feel the effects of having the source and means of getting food and shelter controlled by private interests.

Food and shelter are as necessary as water, therefore the same common sense which has given us public control of enough of the water-supply and highways to accommodate

those who have not private water, should also demand that enough available land and machinery be reserved under public control to accommodate those who have not free access to that under private control. Then no one could be denied an opportunity to produce food and shelter or their equivalent. Poverty and destitution would be practically impossible and consequently disappear.

Now, "available land and machinery reserved under public control" is simply necessary business or industry owned, operated and monopolized by the Government. For instance, the U. S. mail service. In other words, the Government should own, operate and monopolize enough lines of necessary industry, at fair wages, so that by reducing the hours of labor it can provide work for the unemployed. We estimate that public control of the railroads, express, telegraph, coal mines, car lines, telephone, light and water systems, at the eight hour day, would about take up the unemployed. This would put about two million idle men to work, thus incidentally give us two million more patients, do away with dispensaries, charitable institutions and dead-beats, remove the pressure which is crowding the medical profession as well as all trades, and also be the grandest prophylactic measure ever instituted. What could be more fitting than for the medical profession to take the lead in this reform?

We are trying to distribute as widely as possible, circulars fully describing this reform, and therefore we earnestly ask all members of the medical profession to please send stamped and addressed envelope for some of the circulars. It will help a most worthy undertaking and greatly oblige,

Yours for practical prophylaxis,

MAURICE F. DOTY, M.D.

An Acknowledgement.

NEW YORK, Dec. 25, 1897.

To the Editor:—Will you allow me to correct an omission and acknowledge my indebtedness to my friend Dr. F. S. Mandlebaum, for the photographs illustrating my article on "Van Arsdale's Triangular Splint for Fracture of the Shaft of the Femur," etc., in your issue of Dec. 18, 1897.

Yours fraternally, A. ERNEST GALLANT, M.D.

Per Os, not "Orem."

NEW YORK CITY, Dec. 25, 1897.

To the Editor:—Thanks to "F" (page 1284, column 2, lines 46 to 51, JOURNAL, Dec. 18, 1897), because I had rather be right than wrong; because Daniel Webster said that he "would not give a cent for a man who never made a mistake"; because Ambassador Phelps said, "a man who never made a mistake never made anything," and because our beloved, great and honored Dr. Lewis A. Sayre said that he was "thankful for any true criticism, no matter how sharp, keen or cutting."

Respectfully yours, EPHRAIM CUTTER, Sr., M.D.

SOCIETY NEWS.

Resolutions Adopted at the Meeting of the Boston Medical Society, Dec. 18, 1897.—

WHEREAS, The unrestricted abuse of medical charity in the large hospitals and dispensaries of Boston is being seriously complained of by a large number of general practitioners; and

WHEREAS, The State has granted charters to these hospitals and dispensaries for the definite purpose of giving medical and surgical care and treatment to indigent persons within this city and Commonwealth; and

WHEREAS, The Boston Medical Society, individually and collectively, recognize, with every feeling of sympathy, the rights and just claims of some of our citizens to the benefits of public and private charity, and will not be found wanting in generosity in whatever may tend to foster the moral, social and physical well being of the sick, the poor, the destitute, the lowly, the worthy and the unfortunate; and

WHEREAS, Large numbers of persons of both sexes frequently, daily and repeatedly receive medical and surgical advice and treatment gratuitously for numerous cases of minor surgery and ordinary illness, who are believed to be financially competent to pay moderate fees; and

WHEREAS, The time, facilities and attention at the dispensaries being necessarily limited, that which is received by the well-to do and the undeserving is, in that proportion, withheld from those who by chartered rules of those institutions are justly entitled to their benefits; and,

WHEREAS, The practitioners of medicine and surgery of any community who have duly graduated from accredited medical colleges and have incurred the expense of locating in such communities naturally and justly feel that their present and prospective rights and privileges are wrongly encroached upon by the abuses now in practice in connection with medical charities; therefore, be it

Resolved, That it is the opinion of this Society that some means can be found to check or modify this formidable evil; and

Resolved, That an urgent call be made upon all such members of the profession who are in sympathy with this movement and have at heart the best interests of the medical profession, to render such moral assistance and financial support in the adoption of such measures as will tend to eradicate and prevent these evils, abuses and practices; and

Resolved, That an open meeting be held at some future time and the profession at large be invited to be present; and

Resolved, That a copy of these resolutions be sent to the *Boston Medical and Surgical Journal*, the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the *Medical Record*, the *New York Medical Journal* and the *Medical News* for publication.

M. GERSTEIN, M.D., Secretary.

BOOK NOTICES.

Manuali Hoepli Sieroterapia. DEL DOTTOR EMILIO REBUSCHINI. U. Hoepli, Milano, 1897. Pp. viii, 421. (Manual of Serotherapy. By Dr. Emilio Rebuschini.)

This is another of the little Hoepli manuals, which must be very convenient to Italian students and physicians. Its bulk of 421 pages of closely printed text shows that it is more than a brief compendium; it is in fact a very fair compilation of the principal facts of serotherapy up to within the past year or two, apparently fairly and judiciously stated. The work takes up each disorder that has been thus treated or experimented with, from the earlier attempt of Pasteur, Behring and others, down to Sanarelli's latest claims as to the serotherapy of yellow fever. The literature appears to have been very carefully gone over, and American data are not overlooked, as was formerly often the case in European compilations of this nature. To any one who can read Italian this would be a very handy ready reference work.

Fiftieth Anniversary of the Hartford Medical Society, September 15, 1846. Proceedings of the celebration October 26, 1896, at Hartford, Conn.

This volume includes the introductory remarks by the president, M. Storrs, M.D. Historic addresses by Gurdon W. Russell, M.D., on the deceased members and those connected with the later years of the Society, by Horace S. Fuller, M.D. "Esprit de Corps" by Henry P. Stearns; The present and future of the Hartford Medical Society as suggested by a study of the fundamental enactments, by Melancthom Storrs, M.D.

The smooth and pleasant course of the Hartford Medical Society from the foundation in 1846 to the present time made it a pleasant task for the members to meet and celebrate the occasion. No one can peruse the work without feeling that they missed a very important event by not being present. This commemorative volume is of interest to every member of the medical profession, and the biographies contained in Dr. Fuller's address add something to American medical biographies.

Some of the speeches on the occasion of the anniversary dinner were of a high order of literary merit, and all were amusing and entertaining.

The Hartford Medical Society, judging from this volume, is composed of very pleasant people.

Transactions of the Iowa State Medical Society, Vol. xv. Cloth. Illustrated. 400 pages. 1897.

This book contains the proceedings of the forty-sixth annual session of the Society, held at Marshalltown, Iowa, May 19, 20 and 21, 1897. Besides lists of members, auxiliary societies, obituary notices, etc., the forty papers presented at the annual meeting are given in full. The volume is well bound, well edited and on excellent paper, a credit to the society.

Proceedings of the Florida Medical Association. Paper. 85 pages. 1897.

The proceedings of the twenty-fourth annual meeting of the Association, held at Palatka, Fla., April 1897, are given in this volume. The appendix contains the various papers presented at the meeting, lists of members, etc.

NECROLOGY.

JOSEPH LEWI, M.D., Vienna University, Austria, 1847, died at his home in Albany, N. Y., December 19. He was born in Radnitz, Bohemia, August 17, 1820 and came to Albany in 1849. Having obtained prominence by both industry and skill he served with Drs. Thomas Hun, Alden March and Mason F. Cogswell on the board for the examination of New York surgeons for the U. S. Volunteer forces. He was an ex-President of the Albany County Medical Society, the senior censor of the New York Medical Society and a consulting physician on the staff of the Albany Hospital. From the lay press we gather that notwithstanding his robust health which began to fail last spring, he died of some affection of the liver.

Prof. E. S. TARNIER, Paris, aged 69. One of the most notable medical figures of our epoch, an accomplished scientist, instructor and author. His greatest work was along the line of obstetrics, which has rendered his name familiar to every member of the medical world in both hemispheres. In 1882 he proclaimed the necessity of isolation for puerperal fever, and to him we also owe the wide-spread use of sublimate and numerous obstetric appliances. His basiotribe, cephalotribe, dilator, incubator and forceps have rendered incalculable service, and the latest models are still fashioned upon their principles. France recognizes the debt she owes to Tarnier and the clinic with which he has been so long connected, is to be called henceforth the *Clinique Tarnier*. He has been president of the Société de Chirurgie, of the Académie de Méd. and of the Soc. Obstet. de France. The list of his works is given in the *Progrès Méd.* of December 4, but his great "Treatise of the Art of Accouchement" is left unfinished, although two volumes have already appeared, and 700 pages of the third are in press. His pupils who have been assisting him intend to complete the work, making every effort to render it worthy of the master.

STEPHEN H. CONGER, M.D., College of Physicians and Surgeons, New York, 1843, of Summit, N. J., dropped dead in the Delaware, Lackawanna & Western Railroad waiting room on December 24. He came to Summit from New York in 1870, was aged 76 years and leaves a widow and two sons.

RAYMOND L. HELLER, M.D., Napokon, Ohio, December 14, aged 26 years.——P. E. Sandridge, M.D., Nelson, Mo., December 13, aged 66 years.——C. A. Thompson, M.D., Jefferson City, Mo., December 15, aged 74 years. During the war he was surgeon of the Thirteenth and Nineteenth Illinois regiments for four years. He was a prominent figure in the State Medical Association and was treasurer of that body for eighteen years.——Charles H. Jones, M.D., Baltimore, Md., December 17.——William Voorhees, M.D., Spottsylvania, Va., December 19, aged 62 years.——E. E. Buringer, M.D., Pittsburg, Pa., December 19, aged 28 years.

J. B. LARGEAU, one of the younger surgeons of France, outside of Paris, whose name is well known by his communications to the Soc. de Chir, and the *Archives Prov. de Chir.*, of which he was one of the founders.——R. Branchet y Vime Pradat, professor of hygiene at Granada, Spain.——Max Burchardt, privat docent of ophthalmology at Berlin, Graefe's successor at the Charité.——L. Auerbach, professor ex. of histology at Breslau, aged 68 years.——Edmund Drechsel, professor of physiologic chemistry and pharmacology at Berne, aged 54 years, and noted for his investigations of the properties and products of the albuminoids, origin of urea, etc.——L. A. Buchner, aged 84 years, senior member of the medical faculty at Munich, formerly professor of pharmacology.

PUBLIC HEALTH.

Health in Chicago. The report for November gives the total deaths as 1,613, or 0.99 per 1,000, the rate for the same period in 1896 being 0.97 per 1,000. These 1,613 deaths were as follows: 312 under one year old; 184 under five years old; 173 were due to nervous diseases; 170 to consumption; 160 to pneumonia; 120 to heart disease; 87 to acute intestinal diseases; 78 to bronchitis; 75 to diphtheria and membranous croup; 66 to cancer and 44 to typhoid fever.

The Passaic Sewage Problem.—A bill is shortly to be presented to the New Jersey legislature for the building of a great trunk sewer line twenty-six miles long, extending from Paterson Falls to Newark Bay, at a cost of $6,500,000. The work is necessarily of a State nature, inasmuch as there are parts of five counties and eighteen or twenty cities, towns or hamlets in the lower Passaic sewer district. The commission having the matter in charge, in their report to the New Jersey Sanitary Association, estimate that the population of the valley may reach 1,458,000 in 1930. They refer to the dry summer of 1896, when the river proved a veritable cesspool, and make passing allusion to London, Manchester, Glasgow, Berlin, Paris and other centers of population as grappling with the same difficulties in a strikingly humanitarian spirit.

Some Changes of Interest to New York Physicians.—The new State charter of New York allows the addition of another medical member of the city board of health, making three doctors to two laymen. Meetings are to be held in the main office of "the borough," but there will be a branch office in each borough and as many more as may be necessary. The Board of Public Charities is to be formed much on the same lines, the jurisdiction being slightly changed. One commissioner is to be appointed for New York County, another for Brooklyn and Queens Boroughs, and the third for Richmond. The mayor designates the president. A tardy recognition of the rights of the general practitioner is to be noted. The system of registered physicians, who are to be called by the police in emergency cases, which is now in vogue in Brooklyn, has been adopted for the whole city. If patients are unable to pay the physicians for their services the doctors will be recompensed out of a public fund.

Heavy Death Rate at Havana.—Recent reports from Cuba show that a decimation of the population (estimated at 200,000), has been going on during recent months, and the life loss is really greater than in the summer. Deaths from yellow fever have decreased steadily since the middle of summer on account of the establishment of military hospitals outside of infected towns and because of the cool weather. Enteric fever does not seem to exist to any extent beyond the military hospitals but it appears to be very fatal in those institutions. Deaths from malarial fevers have also increased, and no diminution is reported in the number of deaths from enteritis, dysentery and diarrhea; in fact, the deaths from enteritis have increased largely in the military hospitals. The report shows that the total number of deaths in the city of Havana and the town of Regla during the month of November, from all causes, amounted to 2,317, equivalent to an annual death rate of 139 per thousand inhabitants. In June there were 1,041 deaths, equivalent to an annual death rate of 62.46 per thousand; in July, 1,193 deaths, equivalent to a death rate of 71.52; in August, 1,429

deaths, equivalent to a death rate of 86.31; in September, 1,778 deaths, equivalent to a death rate of 106.68; in October, 2,272 deaths, equivalent to a death rate of 136.32; in November there were 2,317 deaths, equivalent to a death rate of 139. It is evident that the contracted food supply has at last reached that point where no food stuffs are delivered without immediate payment. Beri-beri, which has heretofore been confined to the Chinese population in Havana, is reported to exist to some extent among the natives of the lower class, and it is reported to be spreading in Matanzas. Two deaths from leprosy were reported during the month. These deaths were not reported from the leprosy hospital, but from private residences, and it is no unusual sight to see lepers in the streets.

Argument versus the Proposed Senate Bill for Establishing a National Quarantine System.—Dr. Hermann M. Biggs of the New York City Board of Health has given expression to his views criticising the sanitary scheme laid down in Senator Caffery's well-known bill. It will be seen that Dr. Biggs would minimize the executive powers of the proposed national sanitary body and would exalt its scientific, advisory and educational functions. It is his opinion that the time has come when there should be some Federal supervision through a national board or bureau of health. Such a department should have power to determine the minimum sanitary requirements at all ports of entry throughout the United States and should determine the sanitary regulations relating to interstate commerce and communication when there is danger of the transportation of contagious disease from one State to another. It should be controlled by a board whose members possessed the highest scientific attainments and its regulations should be enforced through an executive officer. Such a national department should have thoroughly equipped laboratories, presided over by bacteriologists and chemists competent to make experimental investigations of the highest order. A prominent feature of the work of such a department should be educational. It should issue from time to time circulars of information on various matters connected with the diagnosis, treatment and sanitary supervision of the various infectious and contagious diseases; on methods of disinfection and on various other matters connected with public medicine. These circulars should be forwarded regularly to the health officers of all cities and towns throughout the United States. The circulars of information which would be issued by it (providing the board controlling it was constituted of men of such character as to give the utterances of the department force) would be accepted by all local medical officers of health, State boards and health officers of maritime ports as the minimum sanitary requirements. The educational value of the work of such a department can not be overestimated. In cases of emergency, at the request of local authorities, such a bureau should be prepared to send experts to advise or assist the local authorities in dealing with any unusual or alarming epidemic. In my opinion the bill which has passed its second reading, and is in committee, in the United States Senate does not at all satisfy the requirements of such a department. Under the provisions of this bill unusual powers are placed in the hands of the Secretary of the Treasury, or, in other words, in the hands of the Supervising Surgeon-General of the Marine-Hospital Service. The Marine-Hospital Service was not designed, nor is it competent, to perform the functions of a national bureau of health. It has the supervision of a large series of hospitals for the care of sick seamen. The duties connected with such work do not in any way fit members of the service to perform those required of a national bureau of health. In Great Britain the Local Government Board exercises powers similar to, but more extensive than, those suggested for this department. In my opinion, under the plan outlined, the establishment of a national bureau would soon result in the adoption of uniform methods and requirements throughout the United States.

MISCELLANY.

The Modern Treatment of Prostatic Trouble.—Whatever may be the preferences or conclusions of surgeons regarding a choice between castration and vasotomy, one thing is very certain that after the latter operation the patient will notice a *vas deferens*.

A Recent Appointment.—Dr. Marie Louise Benoit of Lowell, Mass., has been appointed medical interne in the New York State Craig Colony for epileptics at Sonyea. She claims the honor of being the first woman so honored.

Treasured Prescriptions.—Among the archives of the Vatican has been found a collection of copied prescriptions in the handwriting of Michael Angelo. As the artist was much troubled with failing sight during the wane of his life the remedies were intended in all probability for senile cataract.

A Change.—Dr. R. Harvey Reed has accepted the position of superintendent and surgeon in charge of the Wyoming General Hospital, located at Rock Springs, Wyo. This Hospital will be opened for patients about April 1, 1898, and when completed will have accommodations for eighty beds. Dr. Reed will continue with the Columbus Medical Company as one of the associate editors.

A Gift to the New York Academy of Medicine.—At its recent meeting the following nominations were made: Vice-presidents, O. B. Douglas and W. H. Katzenbach; recording secretary, M. Allen Starr; treasurer, H. E. Crampton. The Board of Trustees reported the gift by Mrs. Anna Woerishoffer, of $15,000 to the library endowment fund and it was decided that this sum be set aside as a special fund to be known as the "Anna Woerishoffer Fund."

Bureau of Medical Literature.—Dr. Carl H. von Klein has opened a bureau of medical literature at No. 243 East Erie Street, Chicago, to furnish medical literature to medical writers on every subject from its earliest history, and from every language in which medicine is written. Dr. von Klein needs no introduction to the profession; he is well known as one of the most accomplished linguists on both sides of the Atlantic. His latest translation of Fischer's "Surgery One Hundred Years Ago," is acknowledged praiseworthy by the best critics. The profession will welcome such a bureau, for through it the busy physician will be able to obtain a little rest, while Dr. von Klein will make his researches and translations. The country practitioner can thus take advantage of the nearly one hundred thousand volumes of medical literature in the city of Chicago, including the libraries of the AMERICAN MEDICAL ASSOCIATION, the Senn collection (which includes the Baum and DuBois Reymond libraries), the Newberry, and European medical journals which are kept on file in the various medical libraries. The Editor of the JOURNAL joins with many others to wish Dr. von Klein much success in his worthy pursuit.

Organized Opposition to Hospital Abuses at New York.—A stormy session was held before the New York City Board of Estimate recently over giving away of the public money to the so-called "private charities" and teaching institutions. Dr. F. R. Sturges was spokesman for the league. He was supported by representatives of the County Medical Society, the County Medical Association and the New York Medical Society. These Societies have appeared annually for several years to oppose such appropriations. They were met heretofore with the statement that the State fixed the amount the city should give. Under a recent law the amount to be paid to each charity is made discretionary with the Board of Estimate. League members fought hardest against the giving of assistance to college hospitals, holding that such institutions receive tuition fees from students and take charity patients, not from benevolent motives, but that they may have clinic patients. The league held that instead of giving so much money to private charities the city

should increase its appropriations for the department of charities, that there might be more public hospitals. League men charged that doctors made personal profit from private hospitals for which public moneys were demanded, and officers of hospitals replied that the doctors who protested represented a political organization. The Sloane Maternity, with which the names of divers millionaires are identified, was among those that were attacked, as also was the Post Graduate Hospital's baby-ward. One institution received over $300,000, and the total grant to twenty-five beneficiaries was $1,312,000. And there are still others to be acted upon at an adjourned meeting.

Health Authorities unendowed with Police Powers.—The appellate courts in New York State are quoted as "steadily putting a curb upon the arbitrary and unwarranted exercise of what is known as the police power, in behalf of the health authorities of cities and towns. These officials, not always content with doing what is appropriate to preserve the public health, go far beyond that and interfere inexcusably with property rights." A recent case in New York City furnishes the inspiration of a decision which may bring far-reaching complications in its train. Here the department properly procured an order preventing the use of the property for tenement purposes, on account of its condition. The order went further and directed the destruction of the buildings, although there was no proof that they could not be put to other uses without constituting a nuisance. This the appellate division holds to be wrong, saying that the right to destroy the buildings does not exist, unless they were incapable of being put into such a condition that they would be dangerous to the public health. A lawyer in the case remarked that "exceeding peace had made Ben-Adam bold."

Test of the Army Emergency Ration by Infantry.—Two companies of the Fifth U. S. Infantry were directed by the War Department to make a five-day march from Fort McPherson, Ga., to test the use of the emergency ration. Maj. B. D. Taylor, surgeon, who accompanied the troops, reported that the test of the efficiency of the ration, so far as the men were concerned, was a failure, as it was impossible to be certain that they used it exclusively. One of the company commanders states that the men had been paid the day before starting on the march and thus had the means of purchasing such articles as they desired; and that as they marched through a country abundantly supplied with poultry, milk, butter and eggs, they availed themselves of their opportunities to purchase these articles. Six companies of the regiment, marching over the same ground, were living on the field ration, and had fresh meat and fresh bread nearly every day. Under such conditions it was regarded as hardly to be expected that the men on the emergency ration would live on the same monotonous diet for five days, especially when they were constantly being invited by their comrades of other companies to share their meals. The commissioned officers of the two companies messed together, along with the surgeon, and these lived on the ration exclusively for four days. The surgeon expressed himself as being of the opinion that the ration was amply sufficient, so far as its nourishment is concerned, to sustain life for five days under the strain of the marches made. He found only one man who was able to eat the whole allowance of sixteen ounces hard bread. In fact, all the officers considered that there was an excess of hard bread and pea meal in the ration and suggested a reduction in the quantity. The reports of these officers have been subjected to very unfavorable comment by Deputy Surgeon-General Smart, who conducted the test of the ration made by the First U. S. Cavalry in May last, to whom the reports of the experiment by the Fifth Infantry were submitted. Dr. Smart in his indorsement, which is concurred in by Surgeon-General Sternberg and Commissary General Bell, says:

"These reports show a total misapprehension of the objects of the expedition, and illustrate the necessity for instructing company officers, if the emergency ration is to be of value in times of actual war. The five days' rations, according to the views of the Emergency Ration Board, contain food material sufficient to sustain troops for five days under the maximum strain of war service, and every one who has roughed it on hard bread, bacon and coffee, will acknowledge that there is enough. Troop E, First Cavalry, made a ten days' march in May last on the five days' rations, and the men were in fine spirits and excellent athletic condition at its close. There is no question, therefore, of the ability of five days' rations to sustain men for five days; nor is there any question of the ability of troops to economize their five days' rations so as to make them suffice for a longer period if the officers exercise the necessary supervision over the diet of the men. The experiences recorded in the enclosed reports can not be accepted as in any way a test of the emergency ration. They are, if anything, a test of whether men making light marches could eat and digest in five days what was intended, if need be, to last them for ten days. As might have been expected, they could not. They found the hard bread and pea meal too much for them, but their recommendation that the quantity of each in the emergency ration be reduced, has no value because made in the evident absence of an understanding of why the quantity in the ration was larger than they could eat during their march. The aims of the officers of these commands in making this march as a test of the ration should have been to see that the men lived on the ration, and on the articles of the ration alone, to see that as the men had more than enough at command they did not do themselves harm by overeating, and to see that no part of the ration was destroyed or thrown away, so that at the close of the march a report could have been made of how much of each article had been used under the conditions of their five days march. Another of the objects of a test march by infantry should have been to determine the best way for the soldier to carry his rations. One report says that there is no difficulty in carrying five days' rations, but the best method of packing on the person of the soldier is not specified; while from another report it is gathered that only half a day's ration was carried on the person. Obviously, as the most elementary points connected with testing the value of the emergency ration do not seem to have been appreciated on this march of companies of the Fifth Infantry, the reports of the march have no bearing on the sufficiency or insufficiency of the ration."

Cincinnati.

THE WEEKLY MORTALITY REPORT shows: Still births, 7; zymotic diseases 12; phthisis pulmonalis, 15; other constitutional, 9; local diseases, 57; developmental, 6; violence, 5; under 1 year of age, 20; under 5 years, 32; total, all causes, 104; preceding week, 106; corresponding week, 1896, 120; 1895, 124; 1894, 123.

THE STATE BOARD OF MEDICAL REGISTRATION has been successful in securing the indictment of nine illegal practitioners, and in the case of the State of Ohio vs. France gained a victory in the supreme court by not only having the decision of the lower court affirmed in the matter of the fine imposed, but also the constitutionality of the medical law upheld.

DR. J. B. HOUGH of Lebanon, Ohio was found dead at his home December 3. Dr. Hough was 70 years of age and occupied the chair of chemistry in the Miami Medical College of Cincinnati for a number of years.

THE following half-yearly changes in the staff of the Cincinnati Hospital occurred December 1: Dr. N. P. Dandridge and Dr. E. W. Walker relieve Dr. J. C. Oliver and Dr. Jos. Ransohoff; Dr. E. W. Mitchell relieves Dr. Jos. Eichberg; Dr. C. S. Evans relieves Dr. A. Ravogli; Dr. S. C. Ayres relieves Dr. Geo. H. Good; Dr. W. H. Taylor and Dr. Chas. A. L. Reed relieve Dr. G. M. Allen and Dr. C. D. Palmer; Dr. F. W. Langdon relieves Dr. H. H. Hoppe; Dr. S. E. Allen relieves Dr. Max Thorner; Dr. B. K. Rachford relieves Dr. Allyn Poole, and Dr. Chas. H. Castle takes the orthopedic department.

DR. GILBERT I. CULLEN has returned after an extended tour abroad. He attended the International Medical Congress at Moscow, the Leprosy Congress at Berlin and the French Surgical Congress at Paris.

THE HEALTH DEPARTMENT has just issued a list of all phy-

sicians in Hamilton County who are duly registered by the State Board of Medical Registration, together with the date of their graduation and registration, college, school practiced and residence.

THE DEPARTMENT OF HEALTH has announced that in view of the generally accepted theory of the contagious character of tuberculosis, all cases are to be reported just as other contagious diseases. There is no announcement made, however, which refers to the compensation that the physician is to get for performing this act of precaution for the good of the general public. The Department is also to examine all children who have had diphtheria or have been exposed to it, and they are not to be allowed to return to school until their throats fail to present the Klebs-Loeffler bacillus. The attending physician is to make the examination, the Health Department furnishing the culture tubes and making the culture examination free of charge. In order to carry out the above plan the following rules have been adopted: 1. The culture must be made not less than seven days after the physician has notified the department that the patient has been dismissed. 2. If the examination of the culture is negative the quarantine will be raised in four days from the time of examination. If the culture shows the Klebs-Loeffler bacillus the physician will be informed and another culture must be made in not less than one week after the first culture. 3. In any case where the physician in charge does not desire to make the culture for raising the quarantine the health department will have the culture made at the end of two weeks after the patient has been dismissed.

A CASE OF TENIA ECHINOCOCCUS or hydatid liver has developed here and has aroused considerable interest. Several large cysts have developed and the presence of the parasite has been demonstrated. The disease is a very rare one in this country, Osler being able to collect the records of but eighty-five cases that have occurred in the United States and Canada up to the present time.

Philadelphia.

THE STATE MEDICAL BOARD OF EXAMINERS AND LICENSERS held its winter session during the week ending December 18. There were 103 applicants, out of which number 34 failed to receive the average permitting them to receive the certificate and license. Among the applicants were some holding diplomas from institutions in Germany, England, Italy, Russia and France, but the majority as usual were graduates of last spring from Pennsylvania schools. Thirty of the candidates were recent graduates who had failed to pass at the last examination. Unfortunately for them, the majority of those rejected were also from this group, which seemed, at least in three instances, to prove conclusively the inadequacy of the test offered by the final examinations at the colleges. Some of them were totally unfit, as may be inferred from the following specimen replies: To the question, "What is metabolism?" One man replied: "It is the perasstasis of the blood," and as to the characteristic changes and clinical appearances occurring in tubercular arthritis evoked the following: "The liver and kidneys do not function properly and the skin is covered with lumps." Among those who passed with distinction was one whose professional character and personal worth would have been gladly acknowledged by the Board by granting the license without requiring him to submit to the indignity of the examination with this year's graduates, and, indeed, a motion to omit the examination in his case was entertained by the Medical Council, but it was found that the law was mandatory and ironclad, permitting no exceptions to be made whatever. This was Dr. W. L. Rodman, who has recently come here from Louisville, Ky., to accept the chair of the Principles of Surgery and Clinical Surgery in the Medico-Chirurgical College, and who has been warmly welcomed to the ranks of the profession in this city.

THE ACADEMY OF SURGERY met December 6 and elected Dr. J. Ewing Mears president to succeed Dr. Thomas G. Morton, who had served for three successive terms. A death during the administration of ether was reported by Dr. T. G. Morton at this meeting. The patient was about 60 years of age and had been admitted to the Pennsylvania Hospital for gastric disorder of a year's standing, malignant disease being suspected; pyloric stenosis and dilatation of the stomach was known to exist. Ether was administered in order that an exploratory operation might be made. The patient took the anesthetic badly and there were such convulsive movements of the diaphragm and abdominal wall that it was impossible to close the wound after the section had disclosed an inoperable fusiform cancer of the pylorus and infiltration of the stomach wall. A few drops of chloroform were given, while the ligatures were rapidly applied, but the patient vomited freely a thin, gruel-like fluid and shortly afterward stopped breathing and all efforts at resuscitation failed. The autopsy by Dr. Cattell, the coroner's physician, showed that suffocation had caused death, the bronchial tubes being completely filled with the same thin tenacious fluid which was found in the stomach. Dr. Morton pointed out that in cases of dilated stomach, abstinence from food on the day of operation is not sufficient and he advocated washing out the stomach in such cases as an important precaution to be taken before the administration of ether.

AT THE December meeting of the College of Physicians, Dr. John B. Deaver read a paper entitled "X-Ray Pathology of Fractures about the Elbow," which he illustrated with the aid of the stereopticon.

THE OBSTETRICAL SOCIETY held its meeting December 2. The more important communications were one by Dr. Joseph Eastman of Indianapolis on "The Question of Pelvic Support," and one by Dr. Joseph Taber Johnson of Washington, D. C., on "The Best Way of Treating Pus Collections in the Pelvis; the Abdominal versus the Pelvic Route." After a discussion of the subjects by Drs. J. M. Baldy, Charles P. Noble, W. E. Ashton and others, the Society attended a reception in honor of its guests, at which Dr. E. E. Montgomery presided as the host, at the University Club.

A CHARTER has been granted for a new hospital for contagious diseases, which is to be called the "Health Protective Hospital for Contagious Diseases," in honor of the Woman's Health Protective Association, which has been actively engaged in sanitary work for several years in this city. The announcement has been made that a site has been secured by the purchase of property at Twenty-second Street and Lehigh Avenue, Philadelphia, opposite the Municipal Hospital. The necessity for a pay hospital for such diseases as scarlet fever and diphtheria has been acknowledged for several years, and its establishment has been advocated especially by the late Dr. William H. Ford, president of the City Board of Health; Dr. W. M. Welch, chief physician of the Municipal Hospital, and by Dr. Benjamin Lee, secretary of the State Board of Health. The work has been accomplished by the labors of a joint committee from the Woman's Association above named and from the Philadelphia County Medical Society, the members of the latter being Dr. J. Madison Taylor, chairman; Drs. Edwin Rosenthal, George M. Gould, James Tyson, Frederick P. Henry and Edwin E. Graham. The committee has had weekly meetings for nearly two years, the scientific work and plans being in charge of the medical representatives, while the active labor of providing funds was accomplished by the women representing the Health Protective Association.

THE DENTAL SCHOOL or Department of the Medico-Chirurgical College is now in full running order and is equipped with the latest appliances, including electric lathes and motors.

THE LAST meeting of the Medical Club was devoted to a reception in honor of Prof. Howard A. Kelly, M.D., of Johns Hopkins Hospital.

CHARTER FOR A FAITH-CURE CORPORATION REFUSED.—In Court of Common Pleas, No. 2, Judge Pennypacker recently handed down an opinion in which he refused to grant a charter to the "First Church of Christ Scientist" and delivered an important ruling as to the reasons why the incorporation of a

LEDERLE LABORATORIES DIVISION,
American Cyanamid Company

church, having the practice of faith-cure as one of its objects, is contrary to the laws of Pennsylvania. The chief criticism of the proposed charter was that it conflicted with the act regulating the practice of medicine and requiring all candidates for license to successfully pass an examination before the State Board of Examiners and Licensers, and to have had a previous training of four years in certain prescribed studies, whereas the proposed charter would confer the authority upon the so called church to empower any of its members to treat the most serious diseases although not qualified by the proper course of medical studies or duly licensed by the State Board. "It is quite clear" said the Judge, "therefore, that what is proposed is much more than a church since there is besides to be established a system for the treatment of disease, to be carried into effect by persons trained for this purpose who may receive compensation for their services."

THE STANDARD MEDICAL HISTORY OF PHILADELPHIA, compiled by Frederick P. Henry, M.D., has just appeared in a handsome imperial octavo volume, which is published by a Chicago firm and is for sale by subscription only. It is freely illustrated and contains much valuable historic material of more than local interest, especially with regard to the origin and early struggle of our medical institutions.

THE PHILADELPHIA MEDICAL JOURNAL, a new $3 weekly, edited by Dr. Geo. M. Gould, issues its first number Jan. 1, 1898. As it is not controlled by any publishing house or commercial corporation, it may be expected to be thoroughly independent and to serve no interests other than those of the medical profession. It is published by the Philadelphia Medical Publishing Company, representatives from the leading medical schools being members of the Board of Trustees, who are to be elected annually, and to whom is entrusted the management of the affairs of the Company.

Detroit.

AT THE regular meeting of the Detroit Medical and Library Association, held December 6, Dr. George Duffield presented a paper entitled "Guaiacol in the Treatment of Typhoid Fever." The author first took up the internal administration of the drug. The object is the introduction of an antiseptic drug into the intestinal canal, and the author finds that guaiacol is better than any other remedy for this purpose. He said: "I have never noticed any antipyretic effect when the medicine is administered internally. I give it for its antiseptic properties alone, and I am sure that I accomplish the end sought, because the stools are redolent with the characteristic odor, showing that the medicine must have passed the diseased surfaces as guaiacol and rendered the part aseptic by its presence there. When the stomach is so irritable that the pure guaiacol can not be administered, then we have recourse to the carbonate. I have used Woodbridge's method for several years, and believe his plan is successful in producing an aseptic condition of the intestinal canal, but it is slow, and I believe his plan can be modified so as to produce better effects. I use calomel with or without podophyllin, at first every hour or two until the bowels are thoroughly moved and the flow of bile, nature's antiseptic, is established. Saline waters increase the effect of these drugs and the effect of the guaiacol is augmented." The author next took up the external application of guaiacol. The Doctor stated that the best possible point for the application is on the skin of the abdomen over the ileocecal valve. After thoroughly washing the surface with soap and water, 15 to 30 minims of the liquid is dropped upon the skin and gently rubbed in by an attendant for ten minutes and the area is then covered with cotton and oil silk. The dose should not exceed 30 minims, for often such application is followed by great depression, profuse sweating and sharp chills or other symptoms of collapse. Its effect, when properly applied in the proper dose, is to cause profuse perspiration, the temperature declines and continues to descend for three to four hours. "The pulse grows full and strong and its rapidity lessens in proportion to the reduction of the temperature; the patient shows no signs of cyanosis and invariably says he feels 'first class.' I have noticed that when it has been applied frequently for three or four days, in typhoid fever, a decided reaction takes place and the temperature gradually declines and reaches normal at an earlier period than it otherwise would have done. This treatment can be used with the Woodbridge method to advantage, as something else beside the tablets, which are necessarily slow in their action, should be used to reduce high temperature." No blistering or inflammation of the skin is produced when the drug is applied. "That it is far superior to the cold bath in the treatment of typhoid fever, I believe. It is easy to apply and is safe and efficient."

HEALTH REPORT for week ending December 18: Deaths 77, under five years, 30. Births, male 40, female 36. Contagious diseases, diphtheria 15, scarlet fever 62. Deaths from diphtheria 2, from scarlet fever none.

THE PUBLIC SERVICE.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending December 24, 1897.

Surgeon A. C. H. Russell, detached from the "Lancaster" and ordered home on waiting orders.

Medical Inspector J. G. Ayers, ordered to duty at the navy yard, Portsmouth, N. H., January 17.

Medical Inspector J. B. Parker, detached from the navy yard, Portsmouth, N. H., and ordered to duty as member of the naval medical examining board, Washington, January 22.

P. A. Surgeon T. B. Bailey, unexpired leave revoked, and ordered to the Washington navy yard.

CHANGE OF ADDRESS.

Banton, W. C., from Chicago to 210 Grand Av., Waukegan, Ill.
Burwell, W. M., from Chincoteague Island to Wallis, Va.
Beavis, A. J., from 110 16th St. to 1429 Pearl St., Denver, Colo.
Cobb, J. O., from New York, N. Y., to U. S. Marine Hospital, Detroit.
Cresswell, G. W., from Arvada, Wyo., to 8 De Kalb St., Chicago.
Cline, L. C., from 42 E. Ohio St. to 222 N. Meridian St., Indianapolis, Ind.
Cook, J. F. D., from Clark to Langford, S. D.
De Witt, J. P., from Peerce to 306 S. Cleaveland Av., Canton, Ohio.
Hart, A. C., from 1170 Market St. to Claus Spreckel's Bldg., San Francisco, Cal.
Lawbaugh, A. I., from Opechee to Calumet, Mich.
McConnell, J. W., from 1909 Chestnut St. to 2925 Fairmount Av., Philadelphia, Pa.
Meany, W. B., from 3907 W. Bell Pl. to 1608 4th Av., St. Louis, Mo.
Platon, L. A., from Cooperstown to Valley City., N. D.
Quigley, J. M., from 213 Powell St. to Waller and Clayton Sts., San Francisco, Cal.
Reed, R. H., from Columbus, Ohio, to Rock Springs, Wyo.
Riley, E. A., from Starfield, Mo., to Hoyt Kas.
Terry, Jr., M. C., from Brighton, Iowa, to Fort Shaw (via Sun River), Mont.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Ashmead, Albert S., New York; American Therapeutic Co., New York.

Burr, C. B., Flint, Mich.; Barnham, F. G., Los Angeles, Cal.; Bulkley, L. Duncan, New York; Boteler, W. C., Washington, D. C.; Bell, F. A., Dallas, Texas; Balais, G. E., Freehold, Pa.; Brown, Margaret (Mrs.) Stratford, Canada; Ball, M. V., Warren, Pa.; Bittick, S. G., Henrietta, Texas; Battle & Co., St. Louis, Mo.; Burnham, H. B., Manchester, N. H.; Bryan, Charles, Corn, W. Va.; Baird, James, Evanston, Ill.

Coleman, W. F., Chicago; Crane, A. W., Kalamazoo, Mich.; Clarke, Augustus P., Cambridge, Mass.; Chas. Truax, Greene & Co., Chicago; Cleveland, Theodore F., Baltimore, Md.; Chicago Eye, Ear, Nose and Throat College, Chicago; Chicago, Milwaukee & St. Paul Railway Co., Chicago, Coiville Bros. & Perry, Galesburg, Ill.; Concanon, James J., New York.

Deaver, John B., Philadelphia, Pa.; Dow, Daniel C., Cambridgeport, Mass.

Elgin Milkine Co., Elgin, Ill.; Elliott, H. G., New York; Eagleson, J. B. (2), Seattle, Wash.

Friend, Samuel H., Milwaukee, Wis.; From, F. J., Templeton, Iowa; Fougera, E. & Co., New York; Fisher, G. C., Ann Arbor, Mich.; Farrington, John M., Binghamton, N. Y.; Finley, G. W., Harmony, Ind.

Garber, J. B., Dunkirk, Ind.; Griffith, J. D., Kansas City, Mo.; Gould, George M., Philadelphia, Pa.

Haldenstein, L., New York; Henry Pharmacal Co., Louisville, Ky.; Henry, K. S., Charleston, W. Va.; Haughton, R. E., Richmond, Ind.; Horlbeck, H. B., Charleston, S. C.; Hare, H. A., Philadelphia, Pa.; Hayden, A. M., Evansville, Ind.; Harris, J. J., St. Louis, Mo.; Hunsberger, Nevin, Easton, Pa.; Howe, Lucien, Buffalo, N. Y.; Hyperia, Inc., Citronelle, Ala.; Hobart, John P. (2), Cincinnati, Ohio; Hull, W. H. H., & Co., New York; Hummel, A. L., Adv. Agency (2), New York.

Imperial Granum Co. (2), New Haven, Conn.

Jefferson Medical College, Philadelphia, Pa.

Kirch, E. A., Toledo, Ohio; Kelley, Maus & Co., Chicago.

La Rue, F. G., Hampton, Ky.; Library Surgeon General's Office, Washington, D. C.; Larned, E. R., Joliet, Ill.; Little, J., Bloomington, Ill.; Langston, F. W. (2), Cincinnati, Ohio.

Merrell, Jno. Passaic, N. J.; Moore's Newspaper Subscription Agency, Brockport, N. Y.; Manley, Thomas H., New York; Murfree, J. B., Jr., Murfreesboro, Tenn.; McIntosh, J. M., Connersville, Ind.; Middlebrooks, J. D., Bryans Mill, Texas; MacClure, Theo. R., Lansing, Mich.; MacPherson, F., Dunlap, Mo.; McIntosh Battery and Optical Co. (2), Cincinnati, Ohio.

Newbecker, Minerva M., Asylum, Neb.; Newell & Heldman, Chicago; Nutt, G. D., Williamsport, Pa.; Norwich Pharmacal Co., Norwich, N. Y.

Oakland Chemical Co., New York; Od Chemical Co., The New York.

Parke, Davis & Co. (2), Detroit, Mich.; Parker, W. Thornton, Groveland, Mass.; Plummer, J. W. V. R., Key West, Fla.; Powell, Thomas, Los Angeles, Cal.; Post, S. A., Weston, W. Va.; Powell, R. H., West Milford, W. Va.

Rossiter, F. M., Battle Creek, Mich.; Roberts, William, Fort Adams, R. I.; Rowe, Thomas C., Coal Bluff, Ind.; Ramsay, R. T., London, Ky.; Ring, E. F. C., Philadelphia, Pa.; Rosenthal, Edwin, Philadelphia, Pa.; Russell, F. H., Bluffdale, Ill.

Segur, Gideon C., Hartford, Conn.; Sullivan, T. J., New Frankfort, Mo.; Stallman & Fulton, New York; Simpson-Martin, J. M., Massey, Texas; Spivak, C. D., Denver, Colo.; Stewart, Douglas H., New York; Struthers, A. D., Bedford, Quebec, Canada; Savage, G. C. Nashville, Tenn.; Shoemaker, John V. (2), Philadelphia, Pa.; Schwab, L. W., Chicago, Ill.; Sander, Enno, St. Louis, Mo.; Scott, J. B., Hamilton, Ohio; Scott, S. Stone, Cleveland, Ohio; St. John, Leonard, Chicago; Stiteler, Wharton, Philadelphia, Pa.; Smith, A. E., Utica, Ohio; Smith, D. C., Richland, Kas.; Smith, Q. C., Austin, Texas; Smith, Kline & French Co., Philadelphia, Pa.; Smith, Frank Trester, Chattanooga, Tenn.

Tyree, J. S., Washington, D. C.; Traunweiser, S., Merchantville, N. J.; Tuley, Henry E., Louisville, Ky.

Vande Roovaart, J. F., Chicago; Van Nostrand, D., Co., New York.

Way, J. Howell, Waynesville, N. C.; Wetherill, H. G., Denver, Colo.; Woodbury, Frank, Philadelphia, Pa.; White Rock Mineral Spring Co., Waukesha, Wis.; Willau Publishing Co., The, New York; Weaver, W. H., Chicago; White, F. D., Limestone, Me.; Wolfstein, David L., Cincinnati, Ohio; Wandless, Henry W., Dallas, Texas; Würdemann, H. V., Milwaukee, Wis.

Yolton, J. L., Bloomington, Ill.